



Scientists in the Pipeline: Creating and Maintaining a Sustainable Workforce

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NIH & sustainable workforce

NIH is:

- committed to:
 - supporting a stable, sustainable scientific workforce
- concerned about:
 - the health of the pipeline
 - the increasing age at which new investigators are able to become independent



Will we have enough new investigators to carry out the health-related research of the future?



Major trends affecting the pipeline

- trainee pools
- employment
- demographics
- NIH interventions



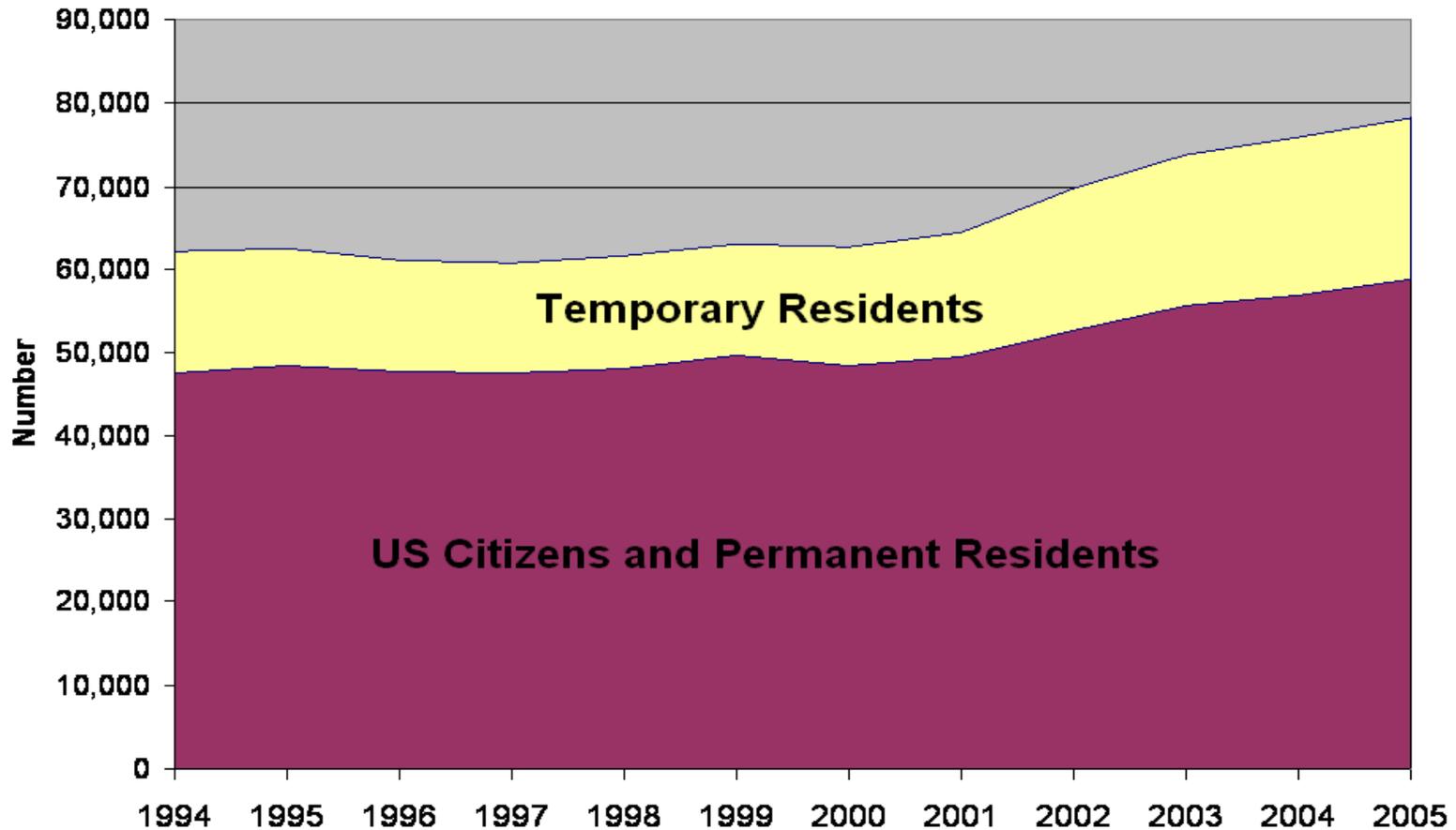
What we are hearing from the community...

Junior scientists
are finding that
the world is
not what they
expected...



Trainee pools: increasing enrollments & degrees

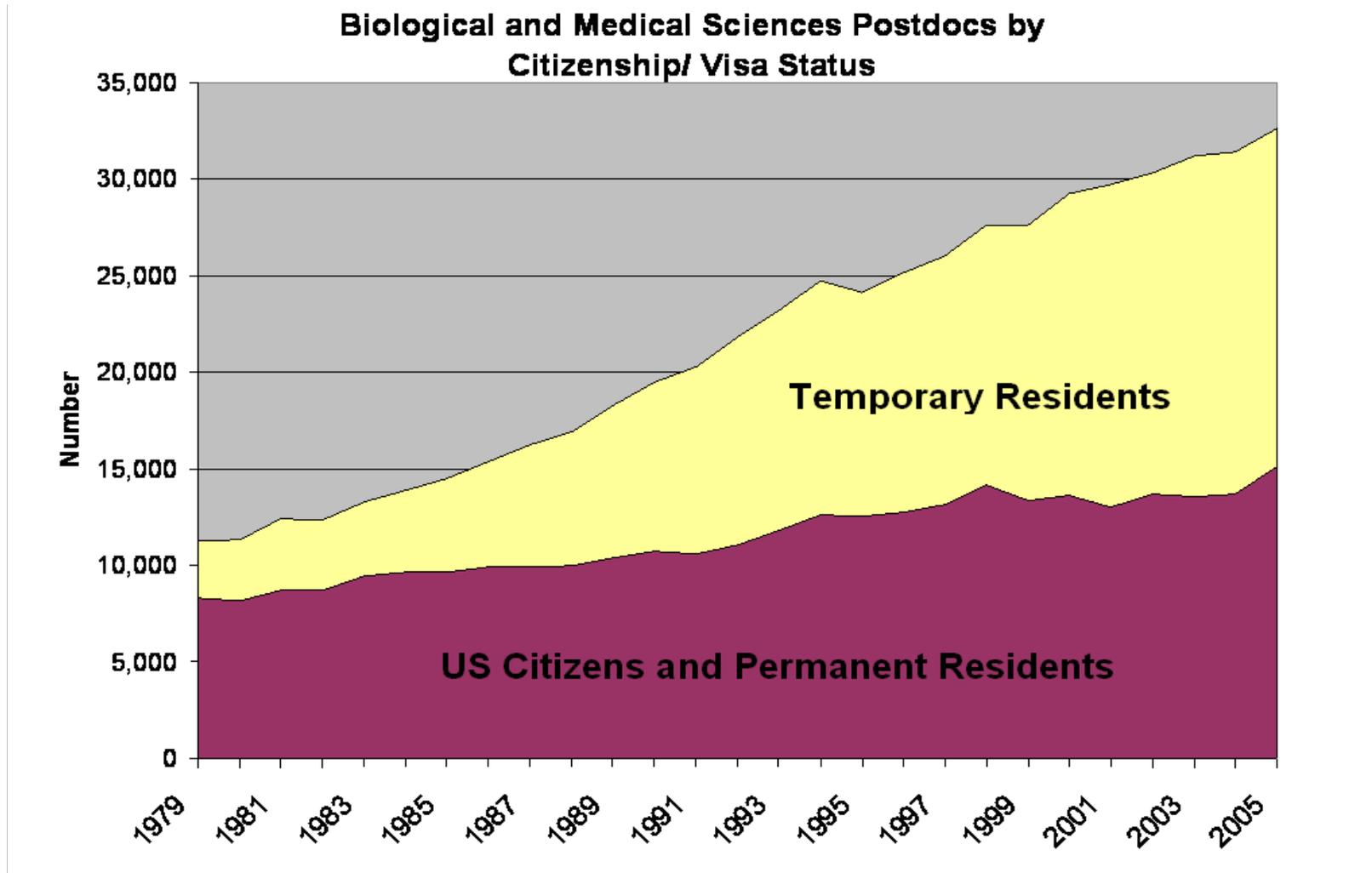
Total Biological and Medical Sciences Graduate Students in Doctorate Granting Departments by Citizenship/ Visa Status



Source: <http://opa.faseb.org/pdf/Training%20Presentation%202007.ppt>



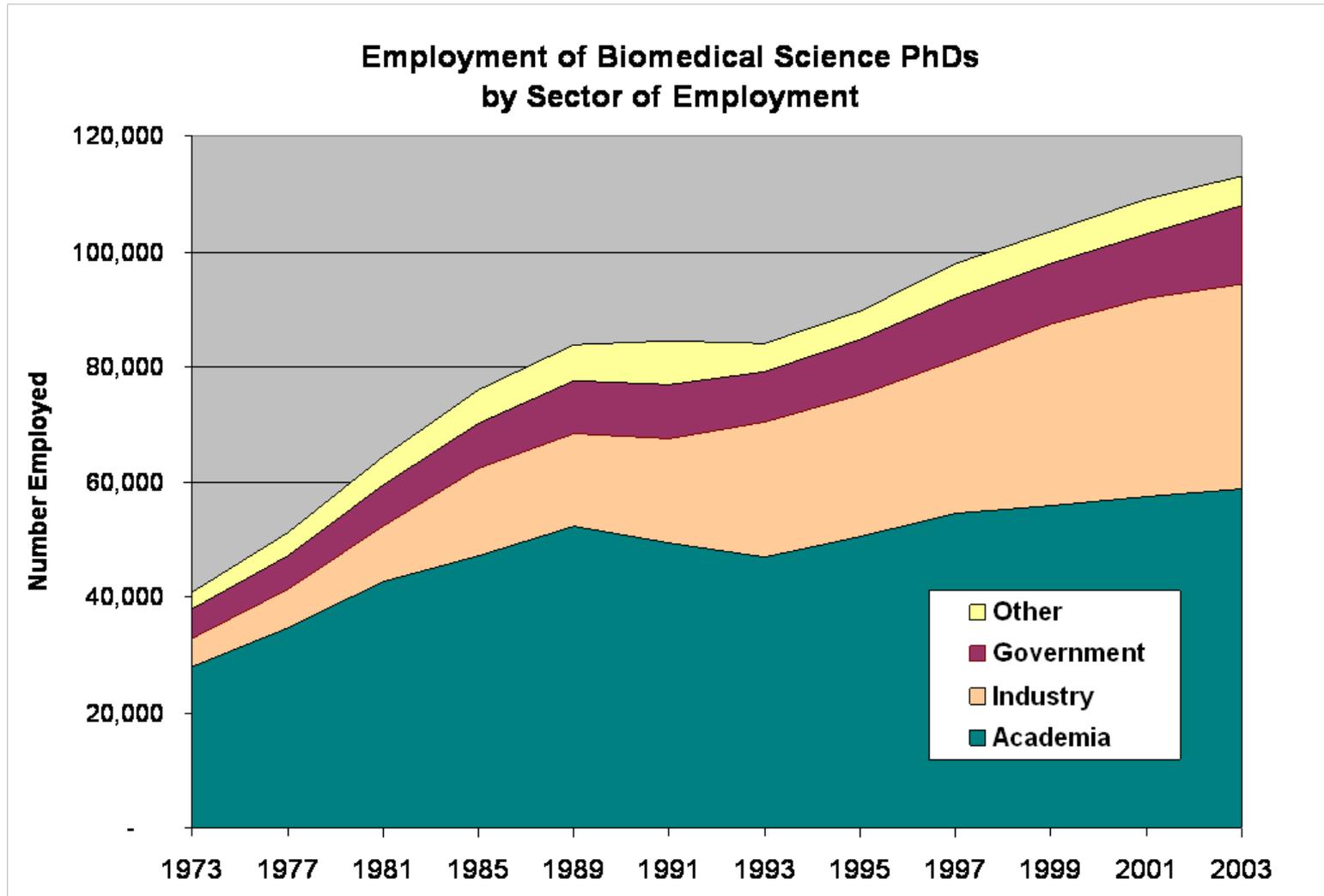
Trainee pools: increasing postdocs in biomedical fields



Source: <http://opa.faseb.org/pdf/Training%20Presentation%202007.ppt>



Employment in biomedical science: relative decline in academia, increase in industry

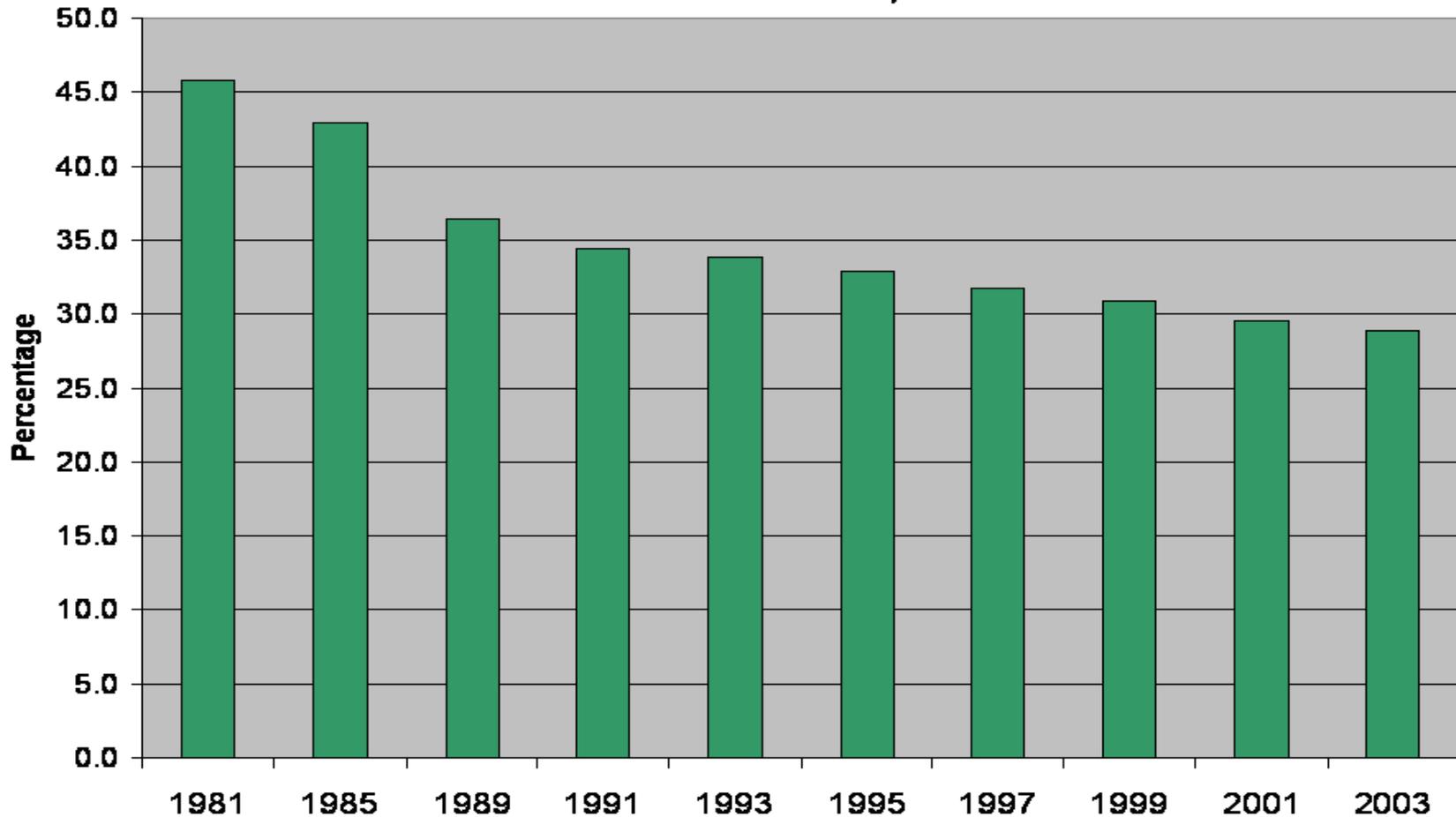


Source: <http://opa.faseb.org/pdf/Training%20Presentation%202007.ppt>



Employment in biomedical science: decline in tenure/tenure-track

Percentage of U.S. Biomedical Science PhDs Holding Tenure or Tenure-Track Positions, Total

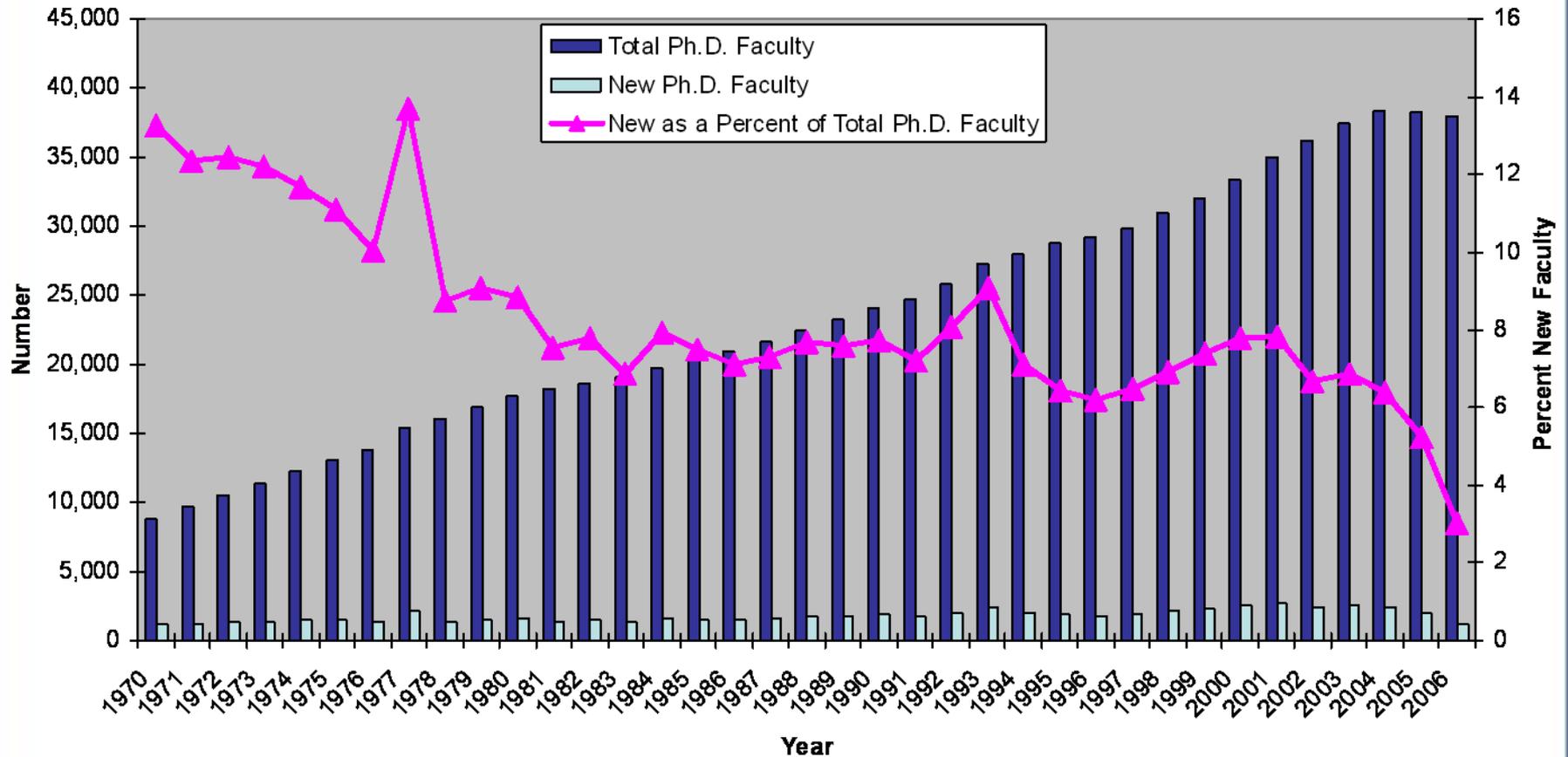


Source: <http://opa.faseb.org/pdf/Training%20Presentation%202007.ppt>



Employment in biomedical science: decline in medical school Ph.D. faculty

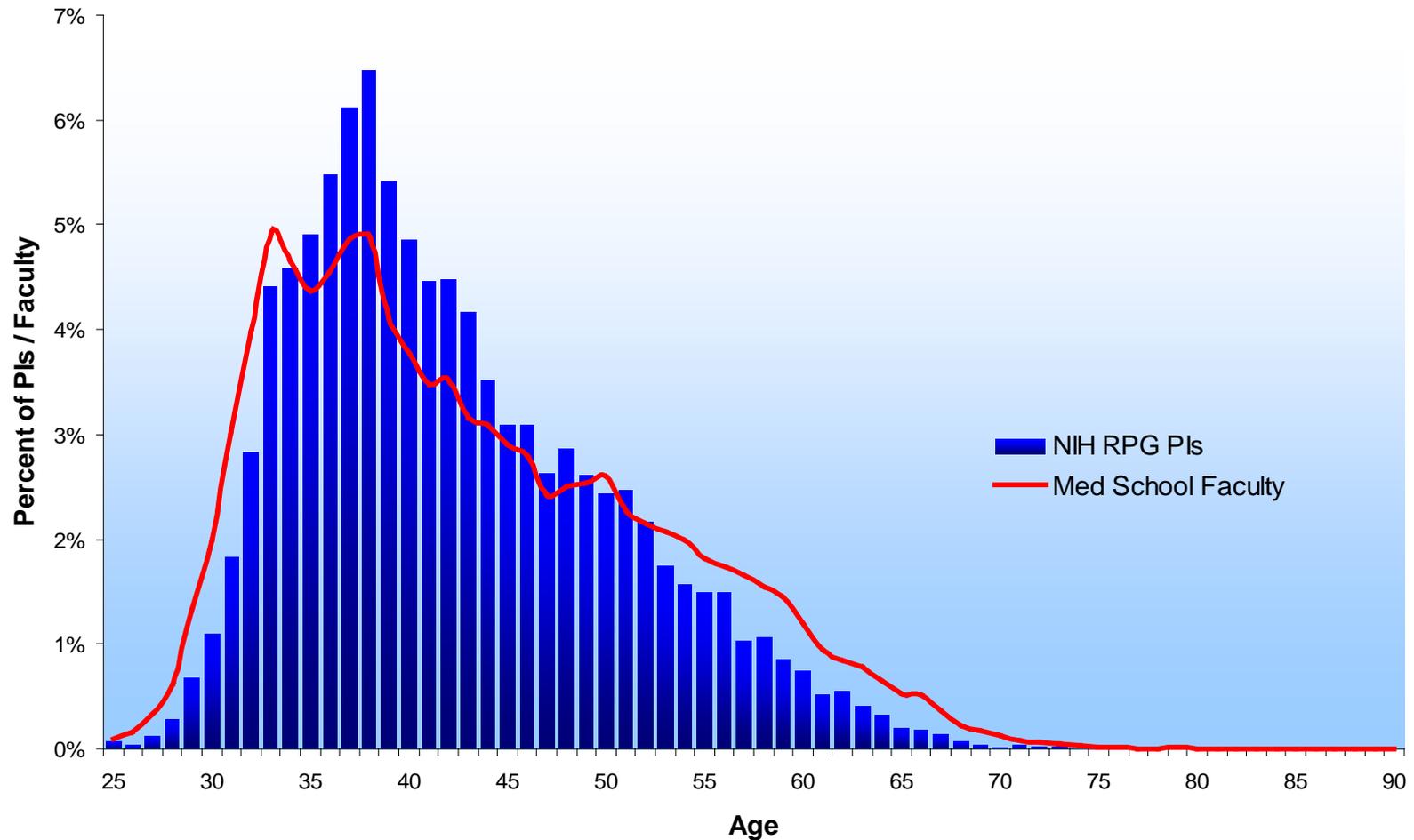
Total and New Ph.D. Faculty 1970 to 2006 in U.S. Medical Schools
Association of American Medical Colleges



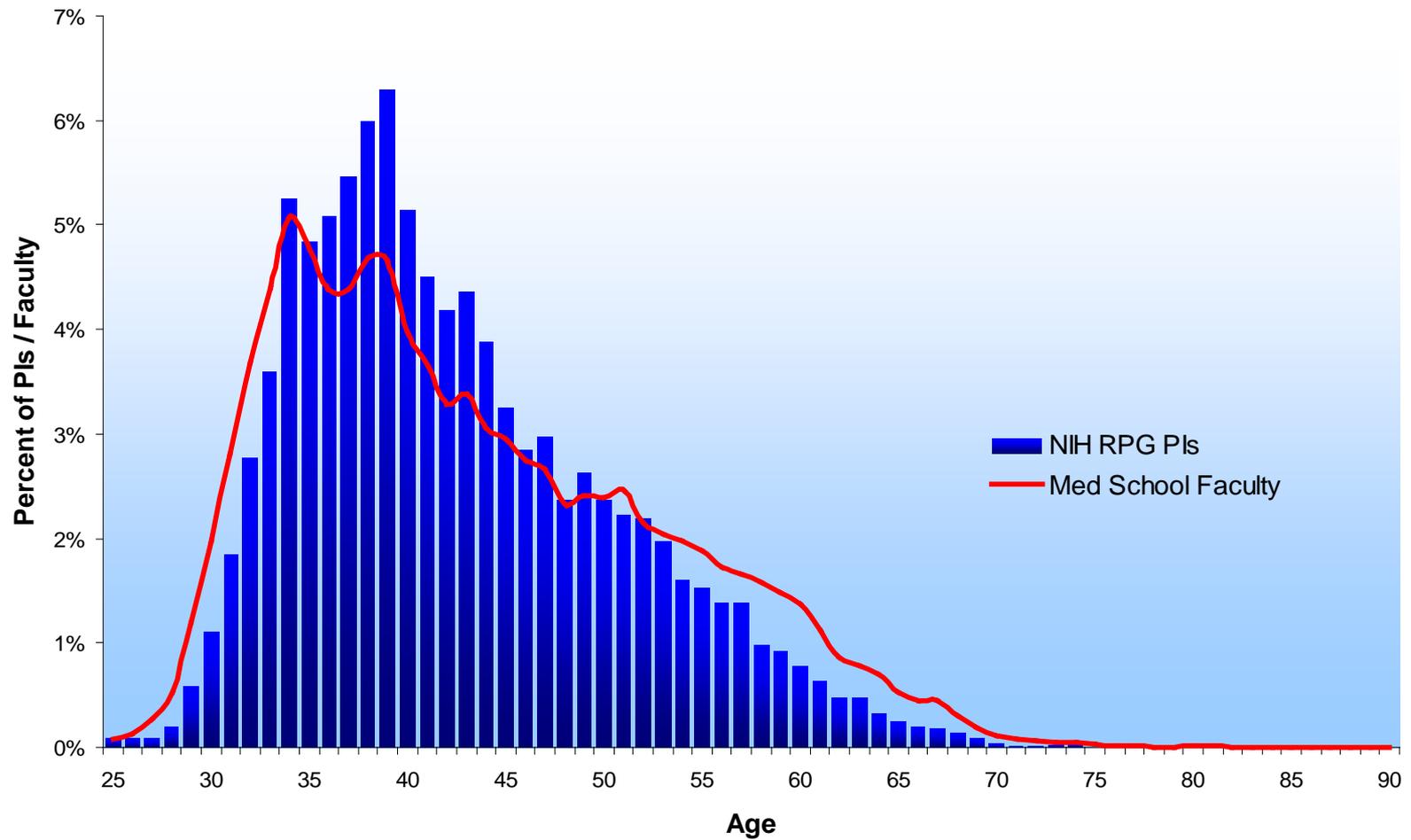
Source: <http://www.aamc.org/data/facultyroster/reports.htm>



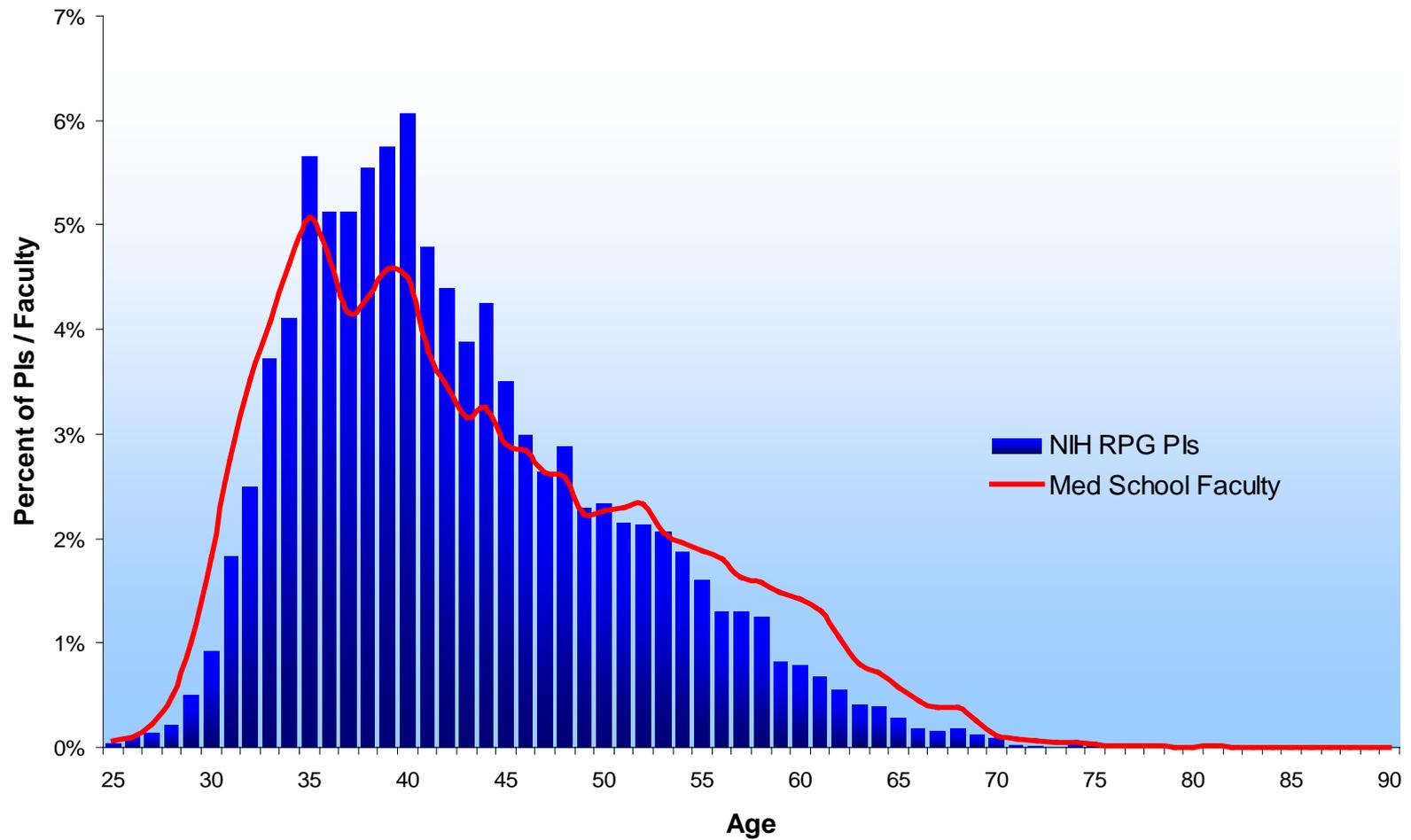
Changing demographics 1980



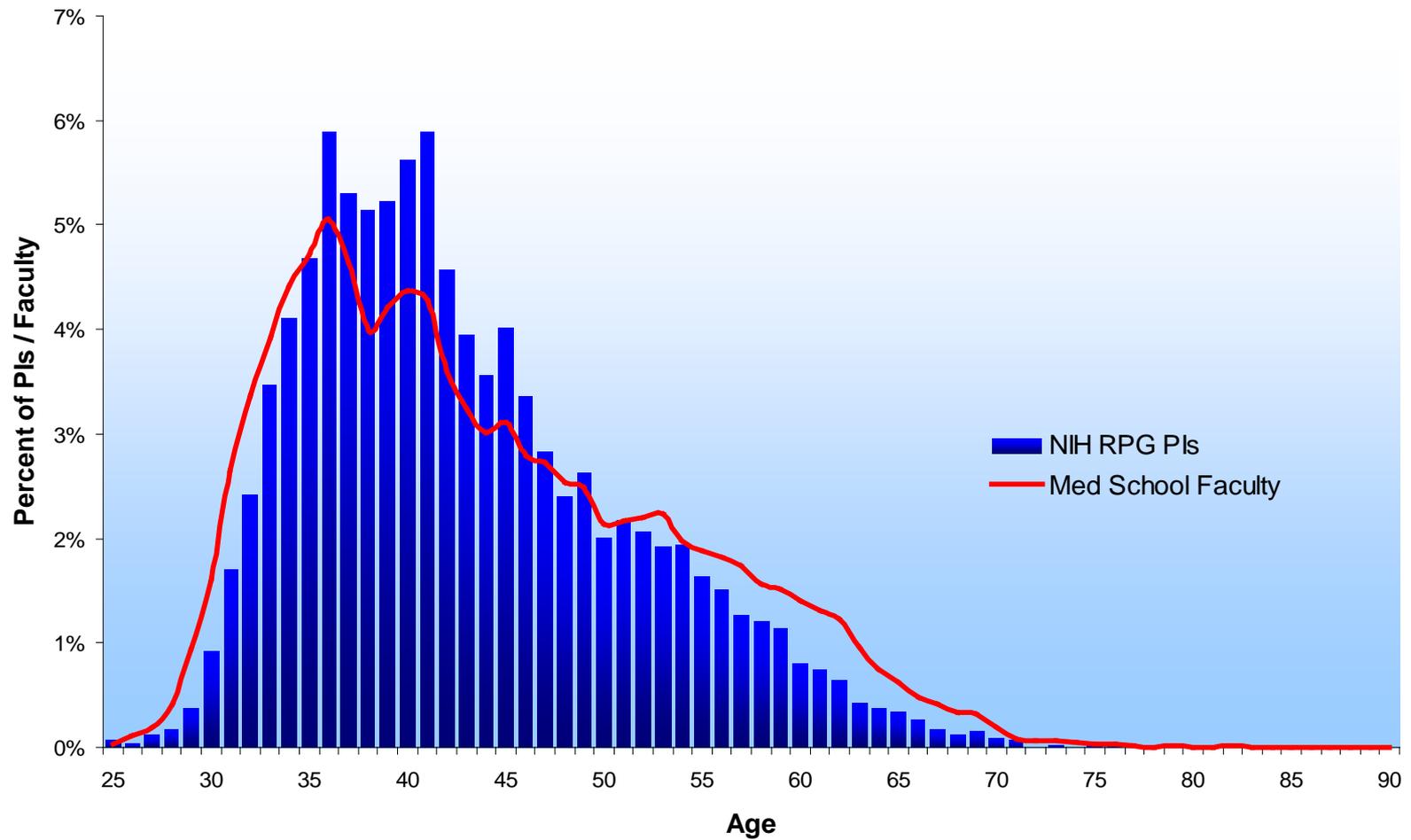
Sources: IMPAC II Current and History Files and AAMC Faculty Roster System



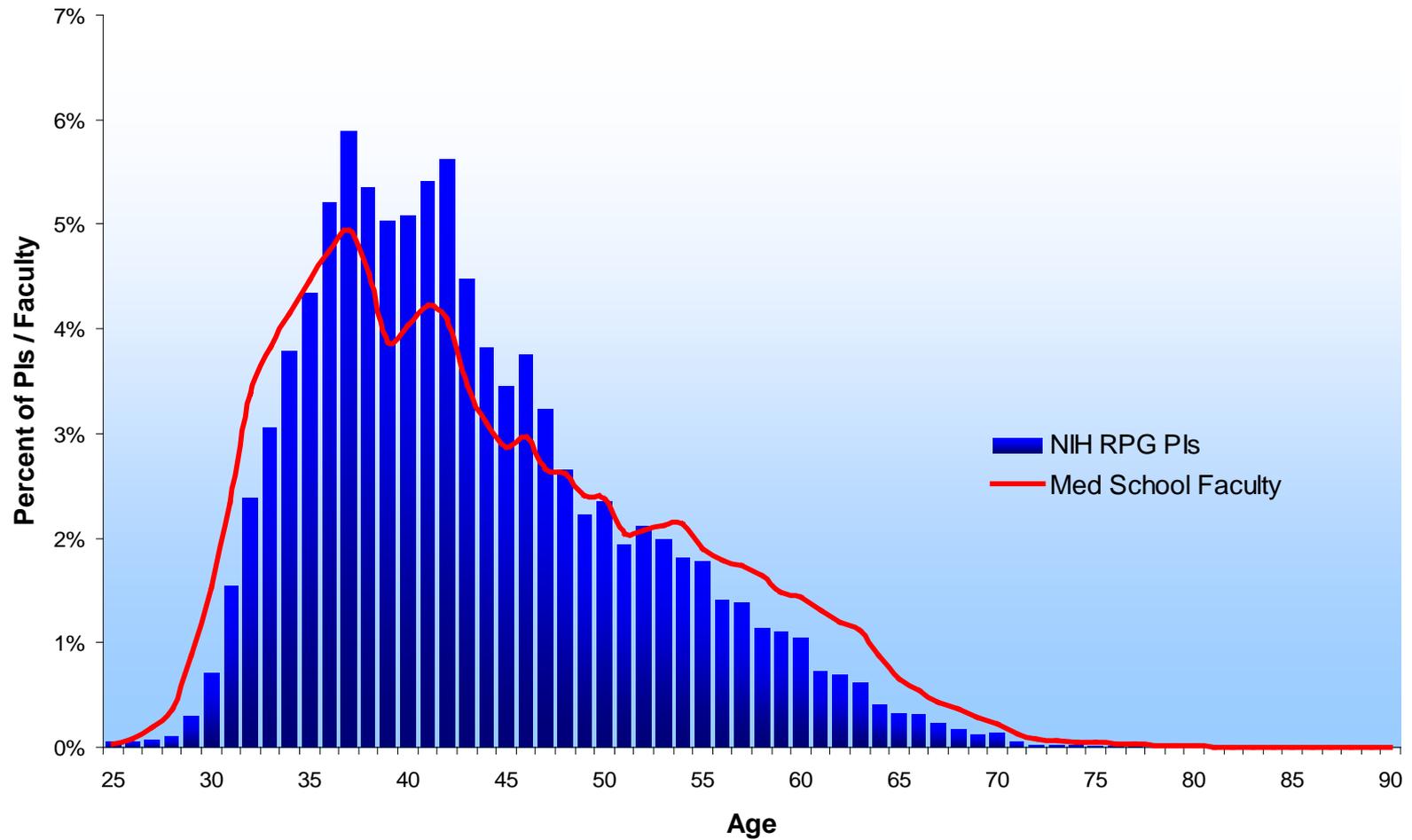
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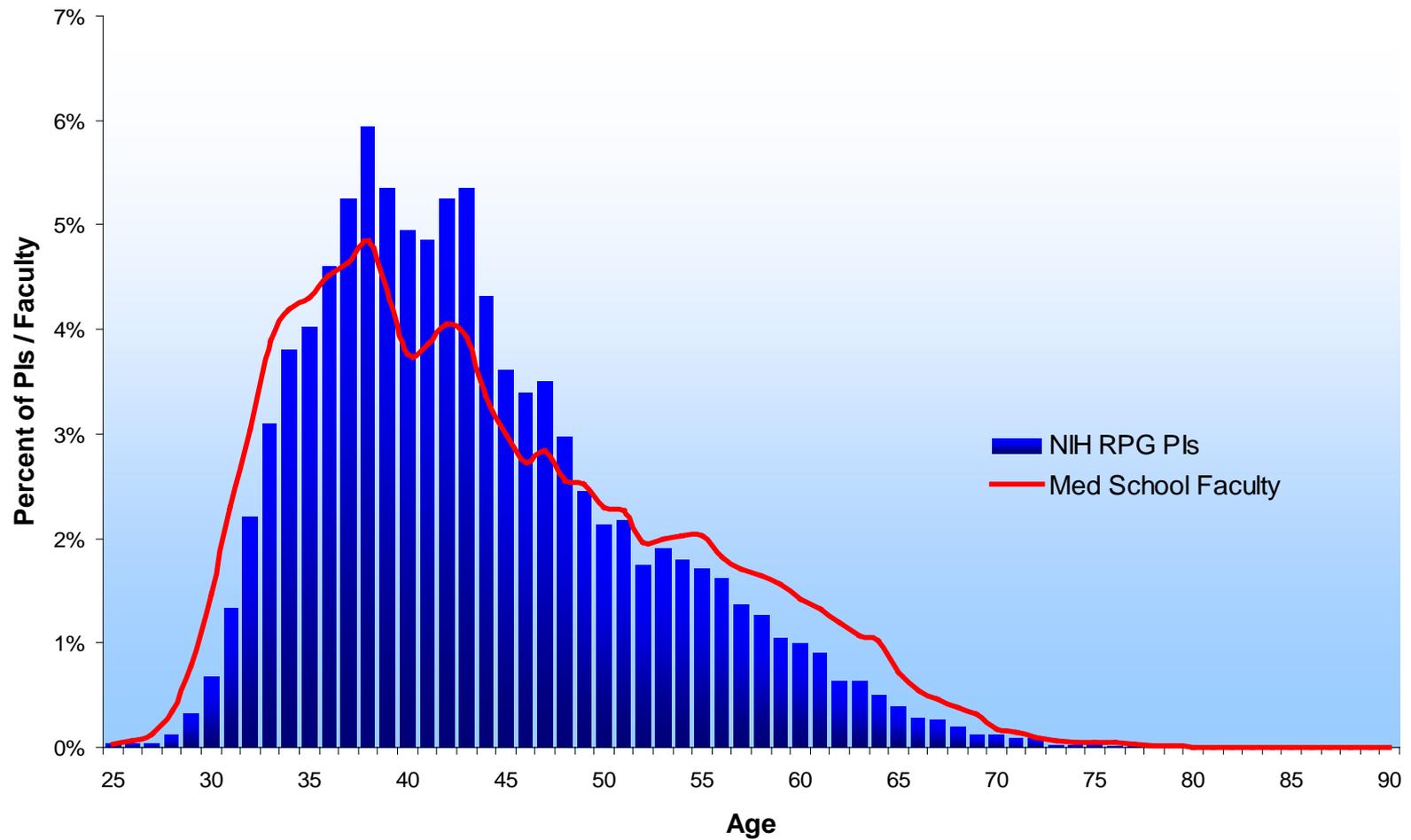
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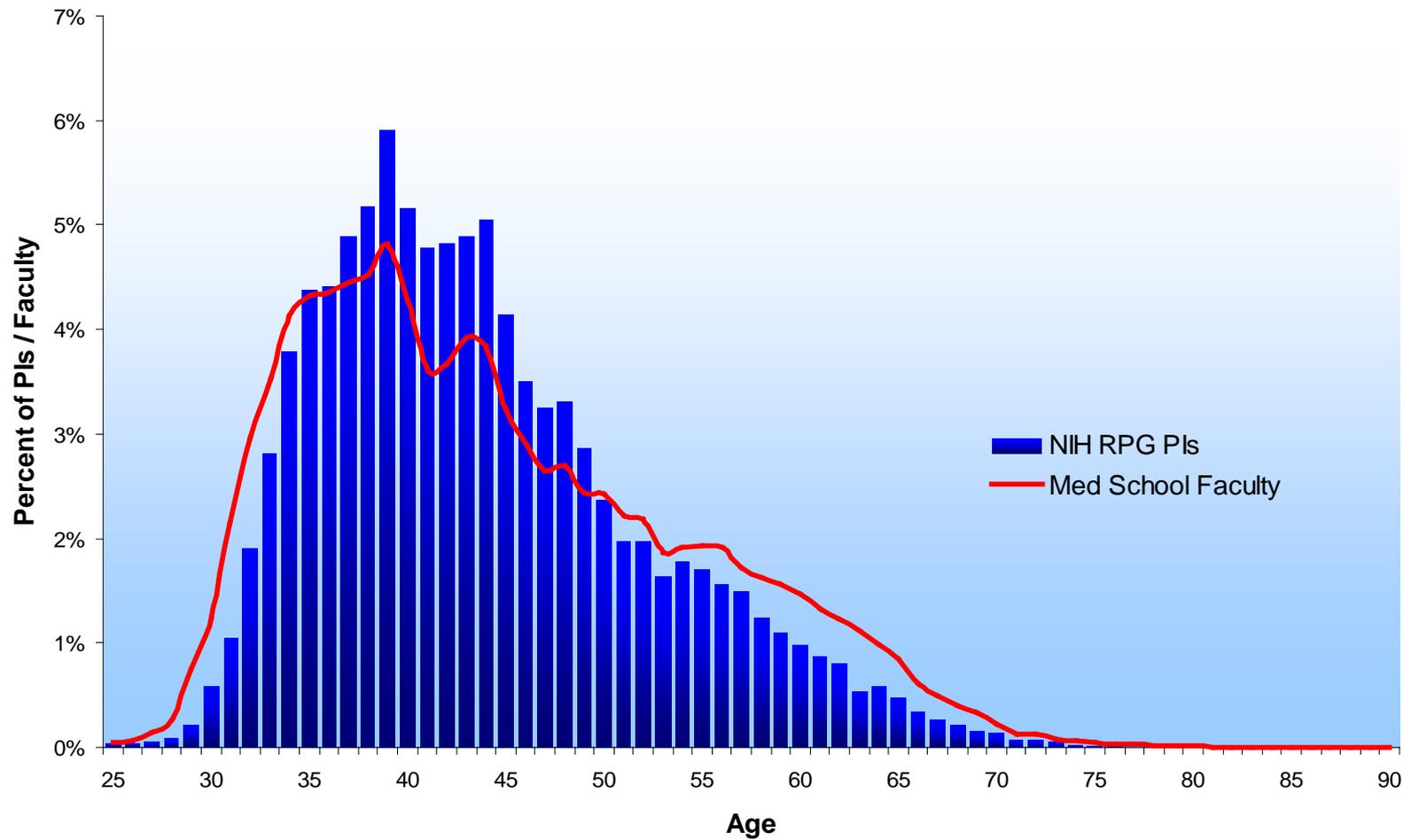
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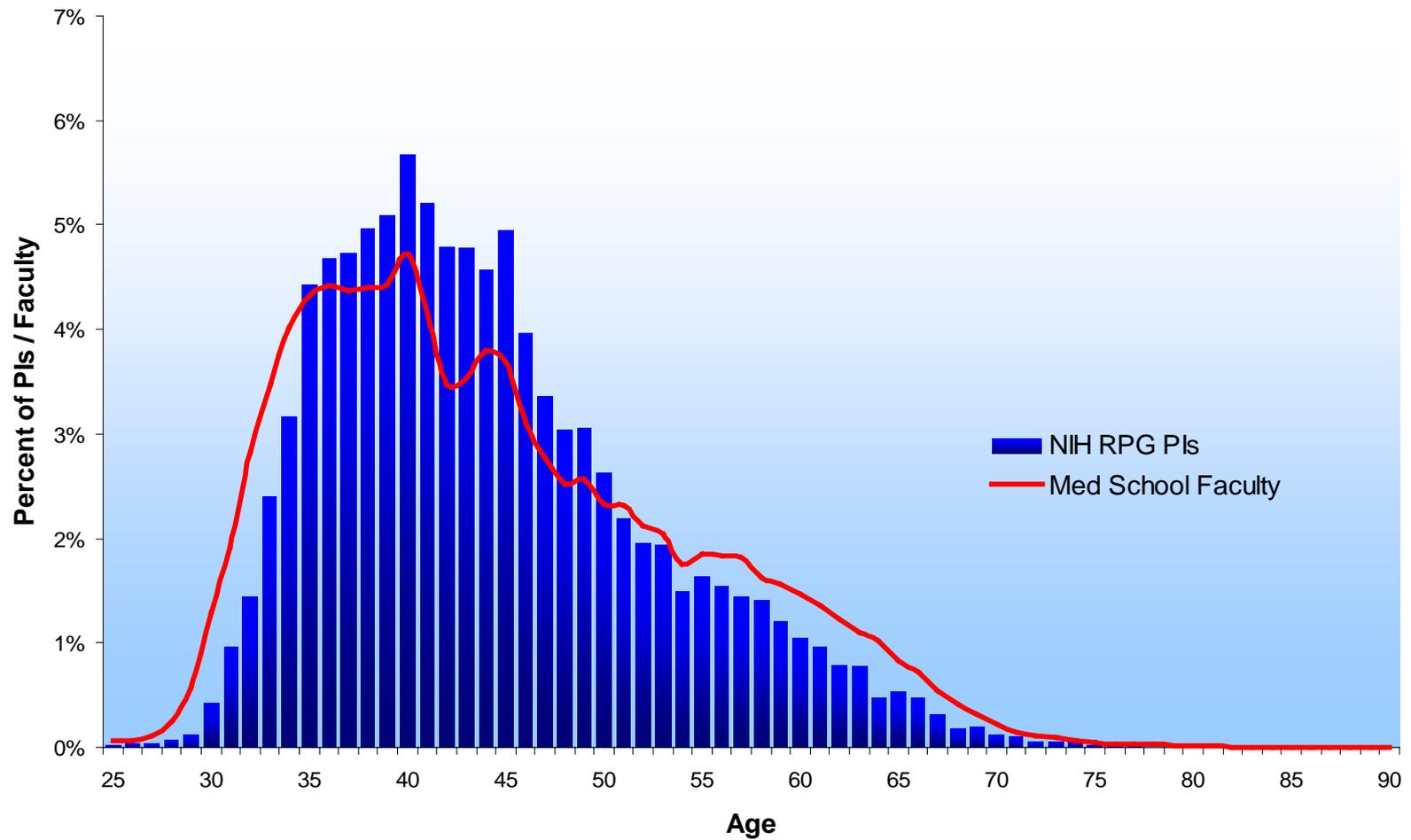
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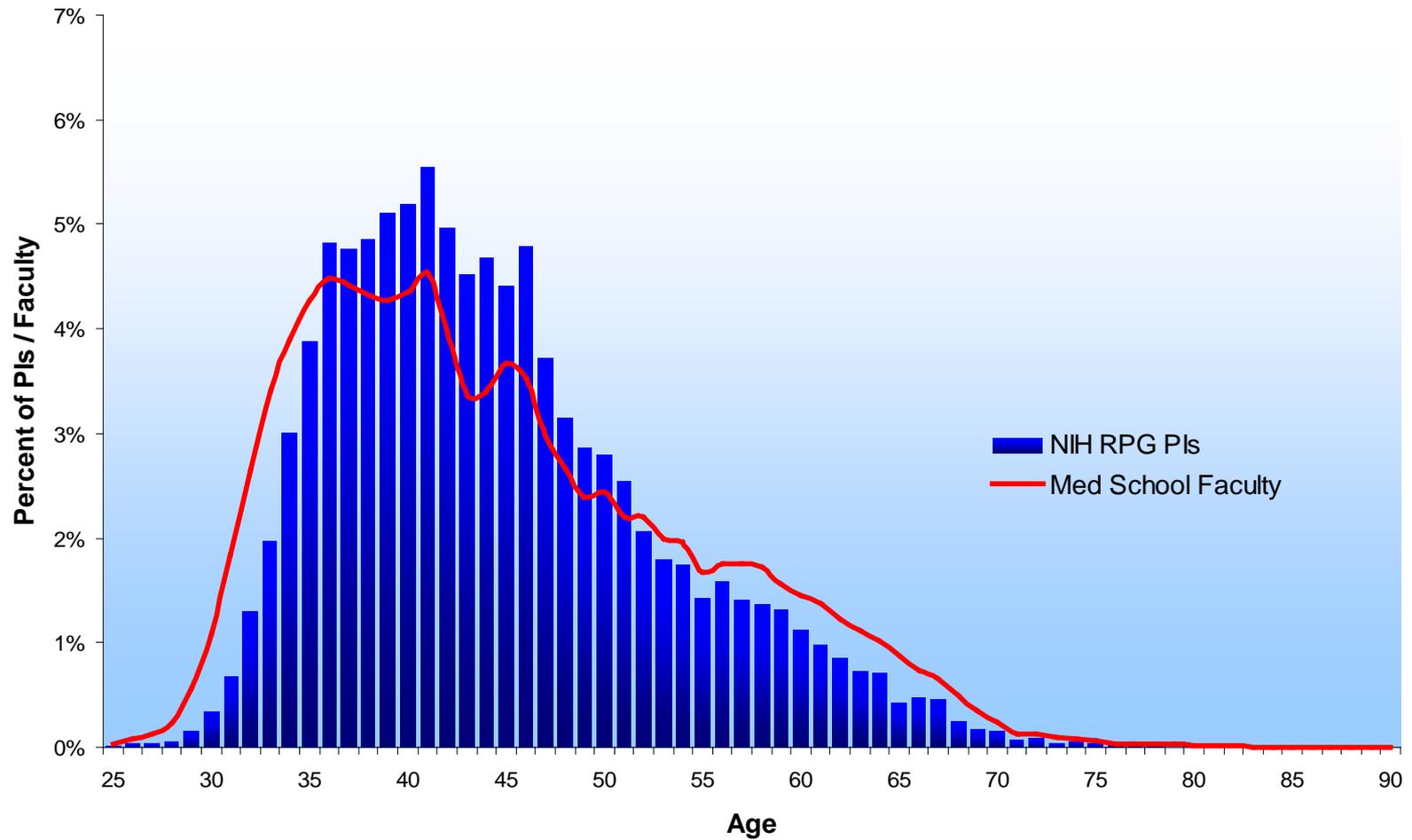


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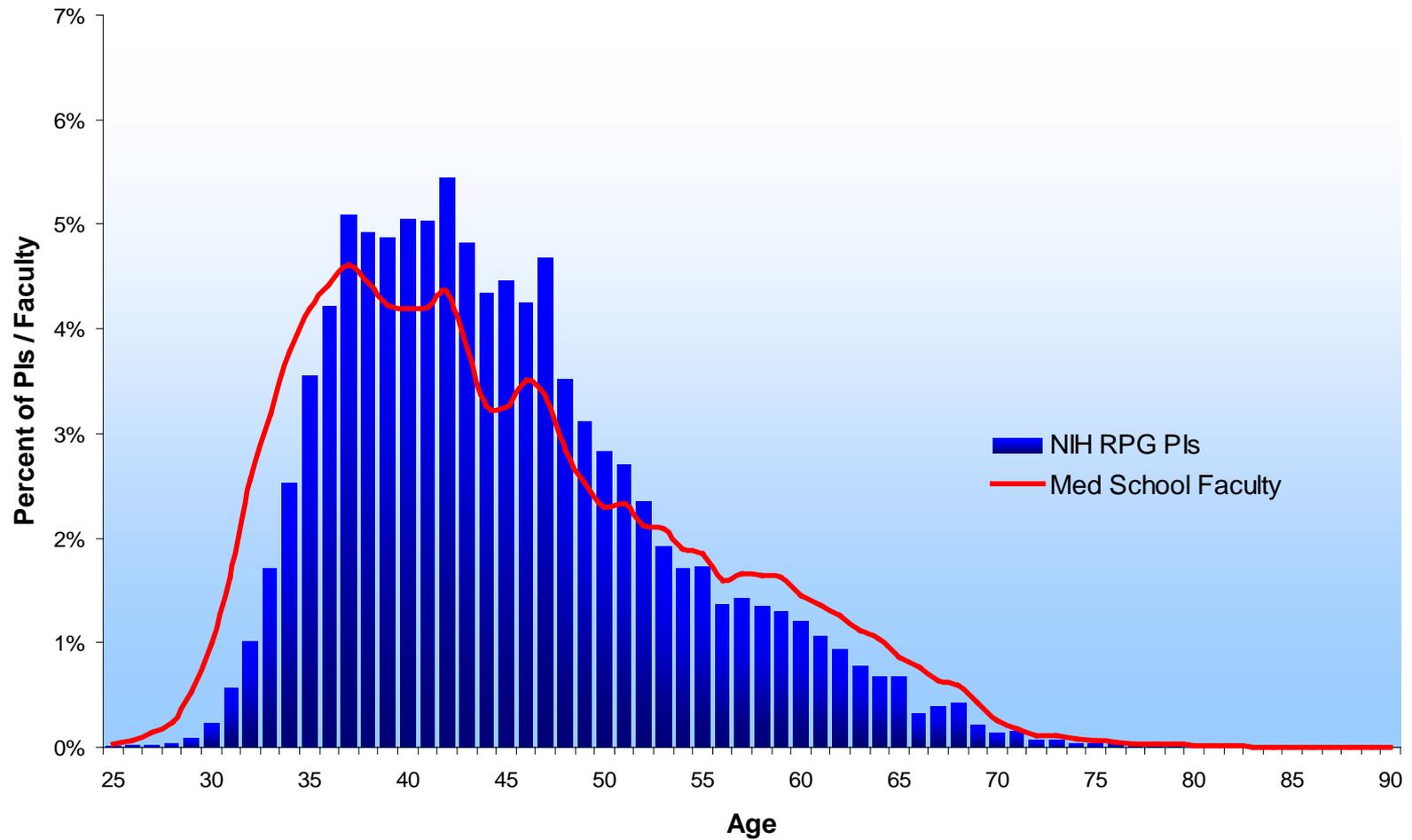


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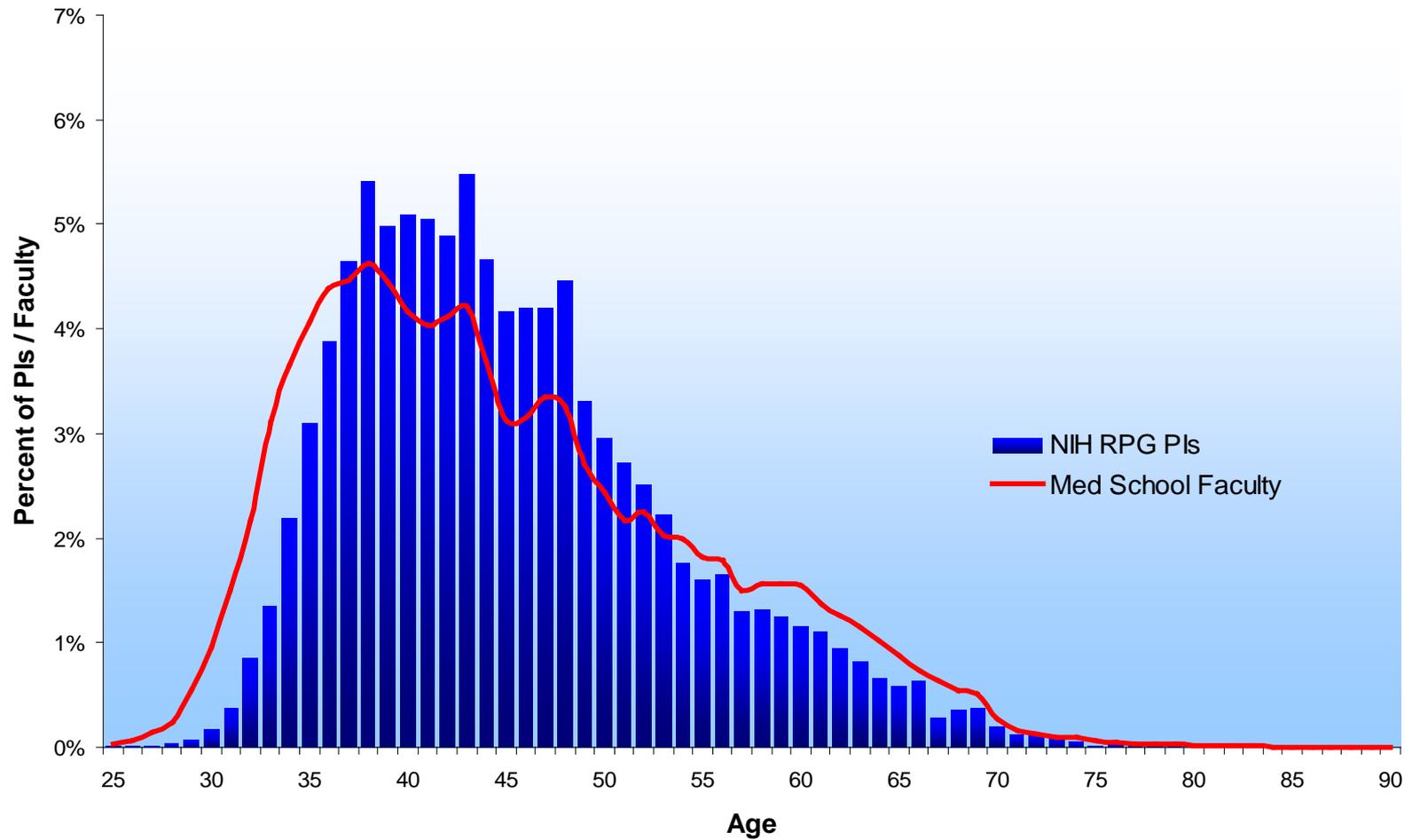


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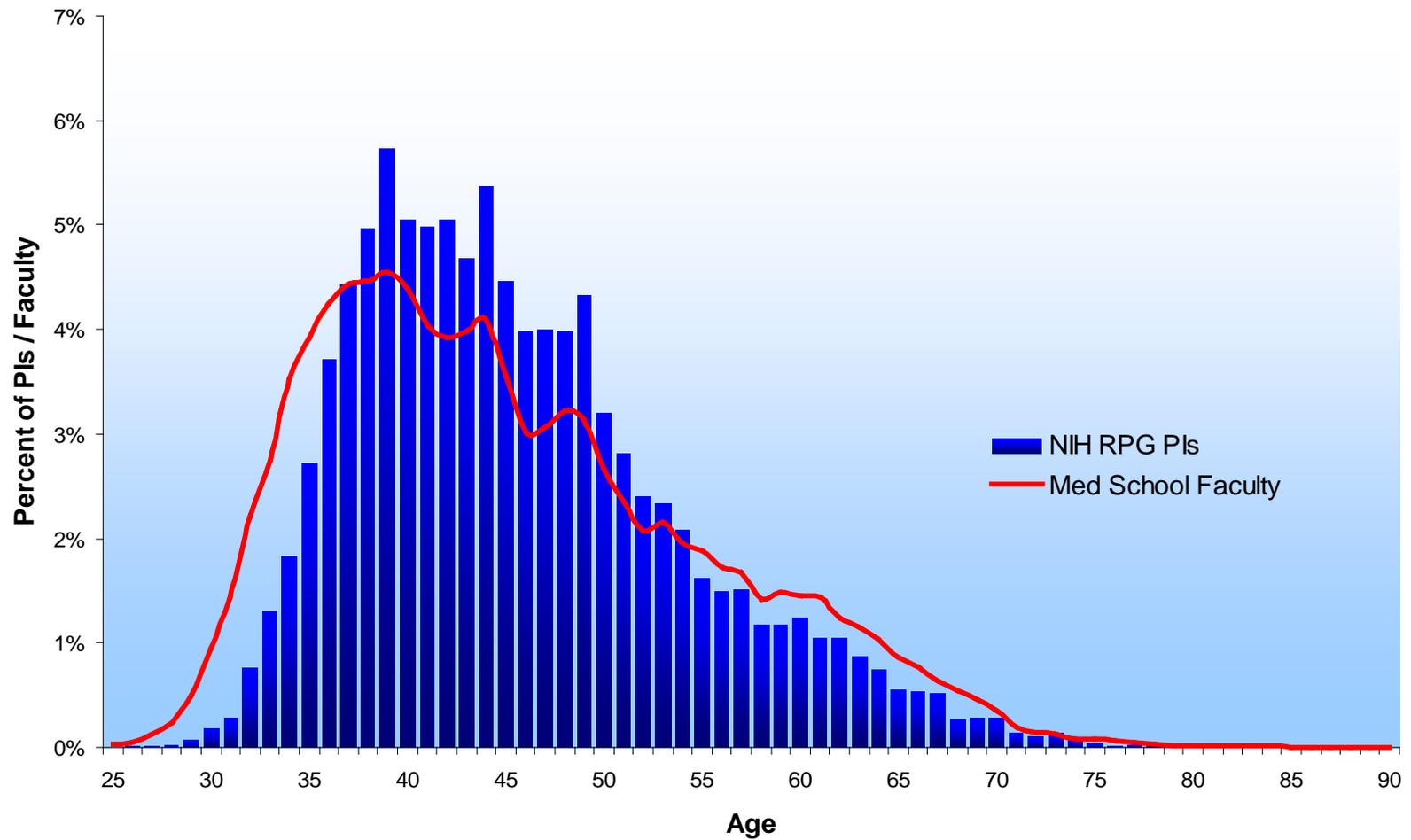


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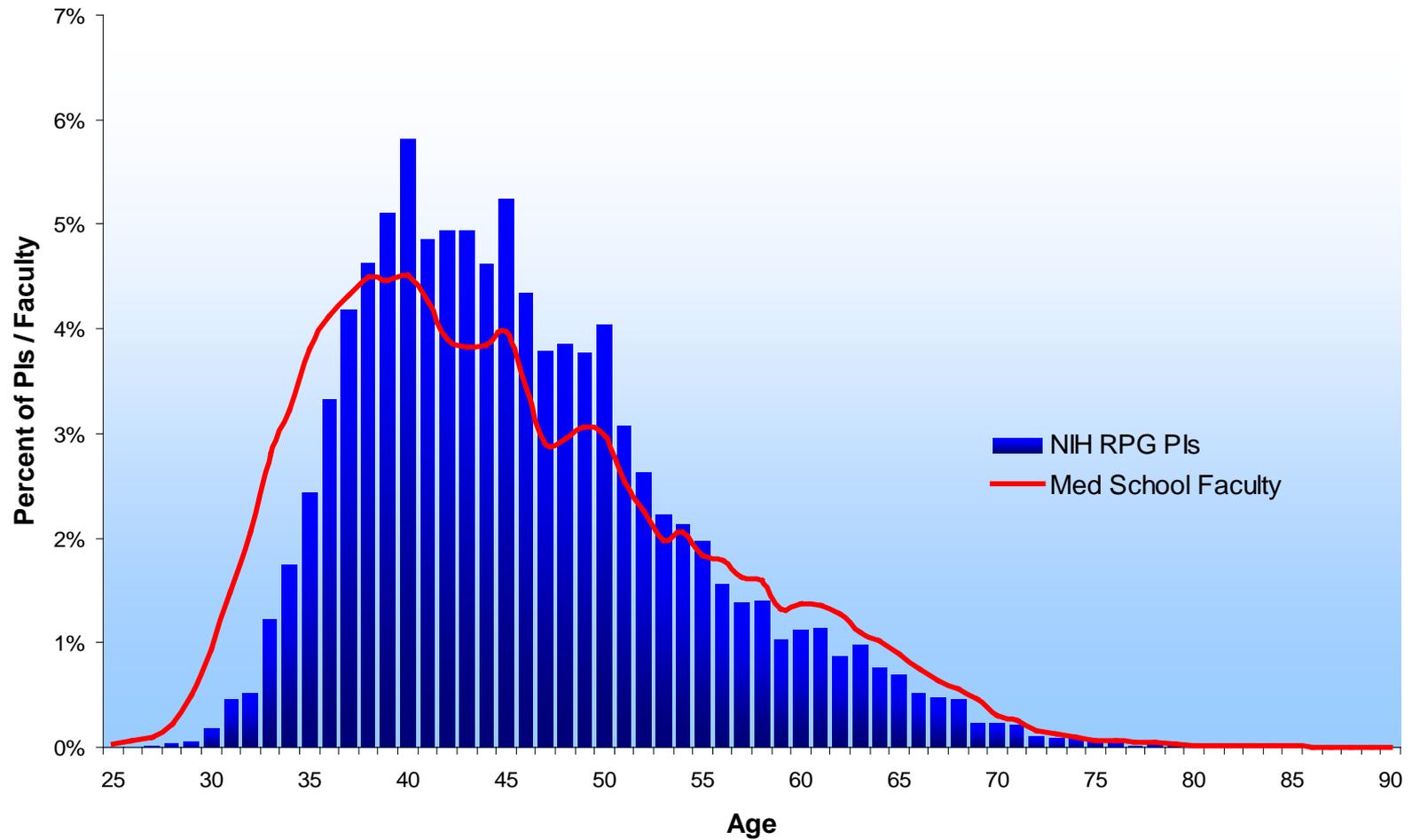


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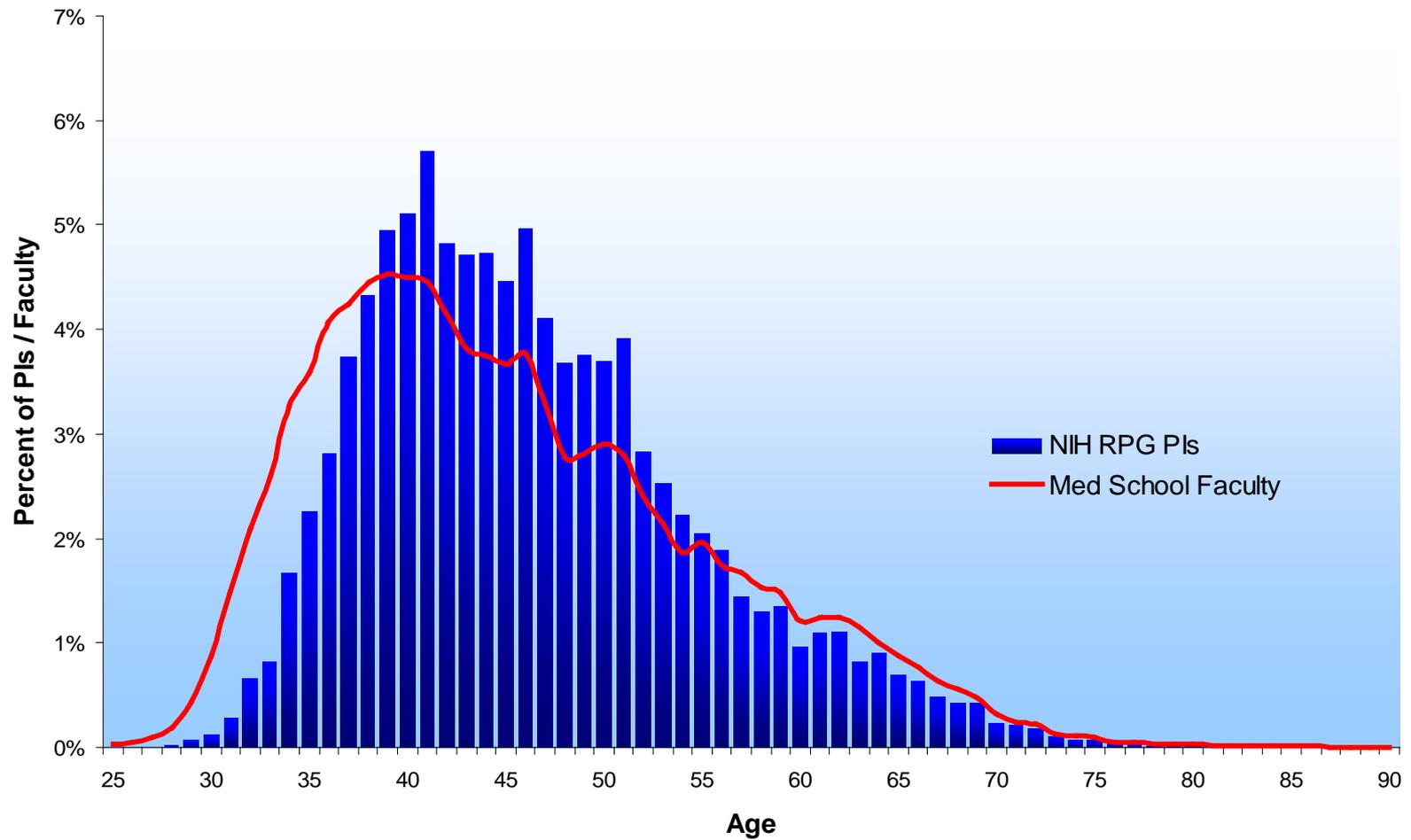
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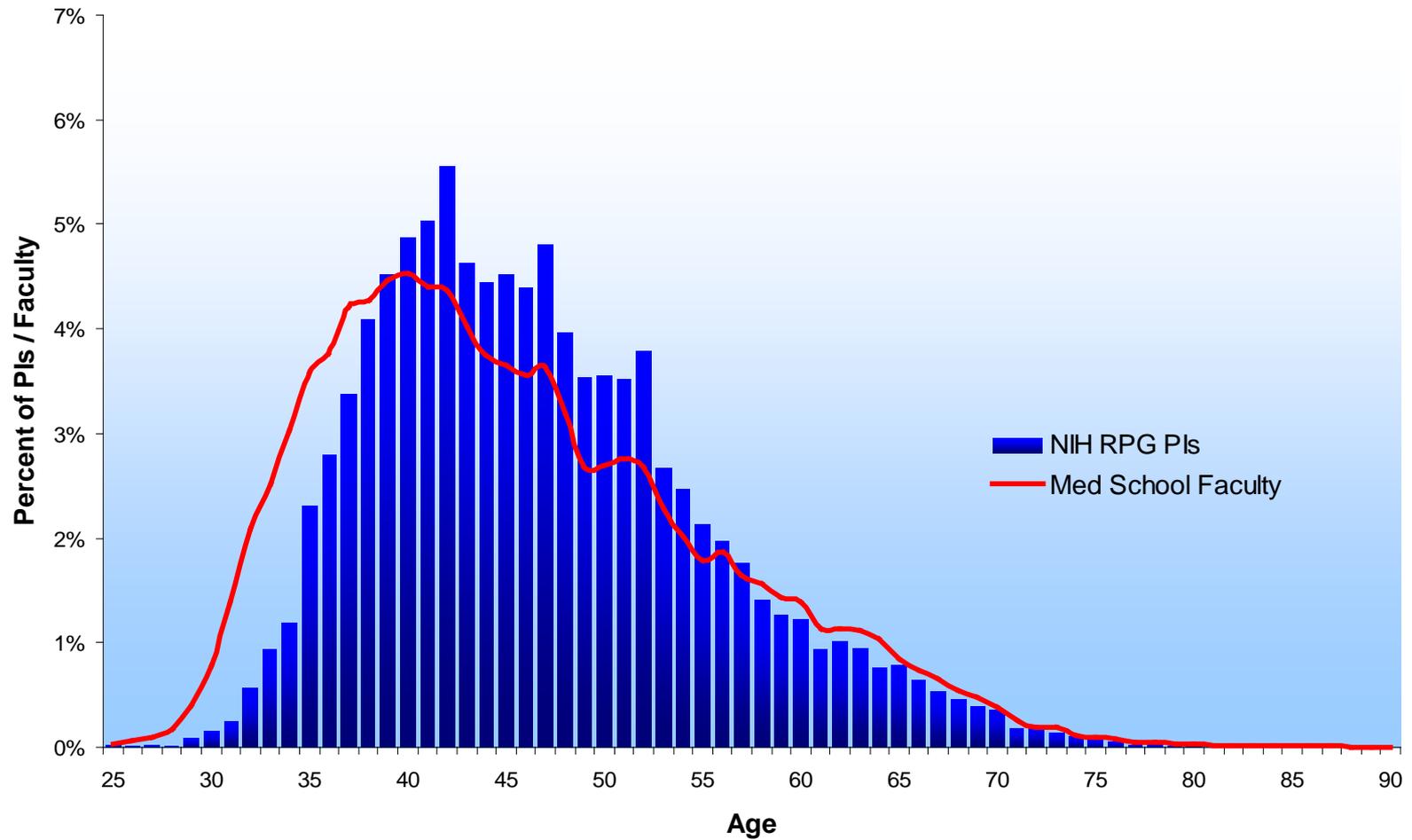


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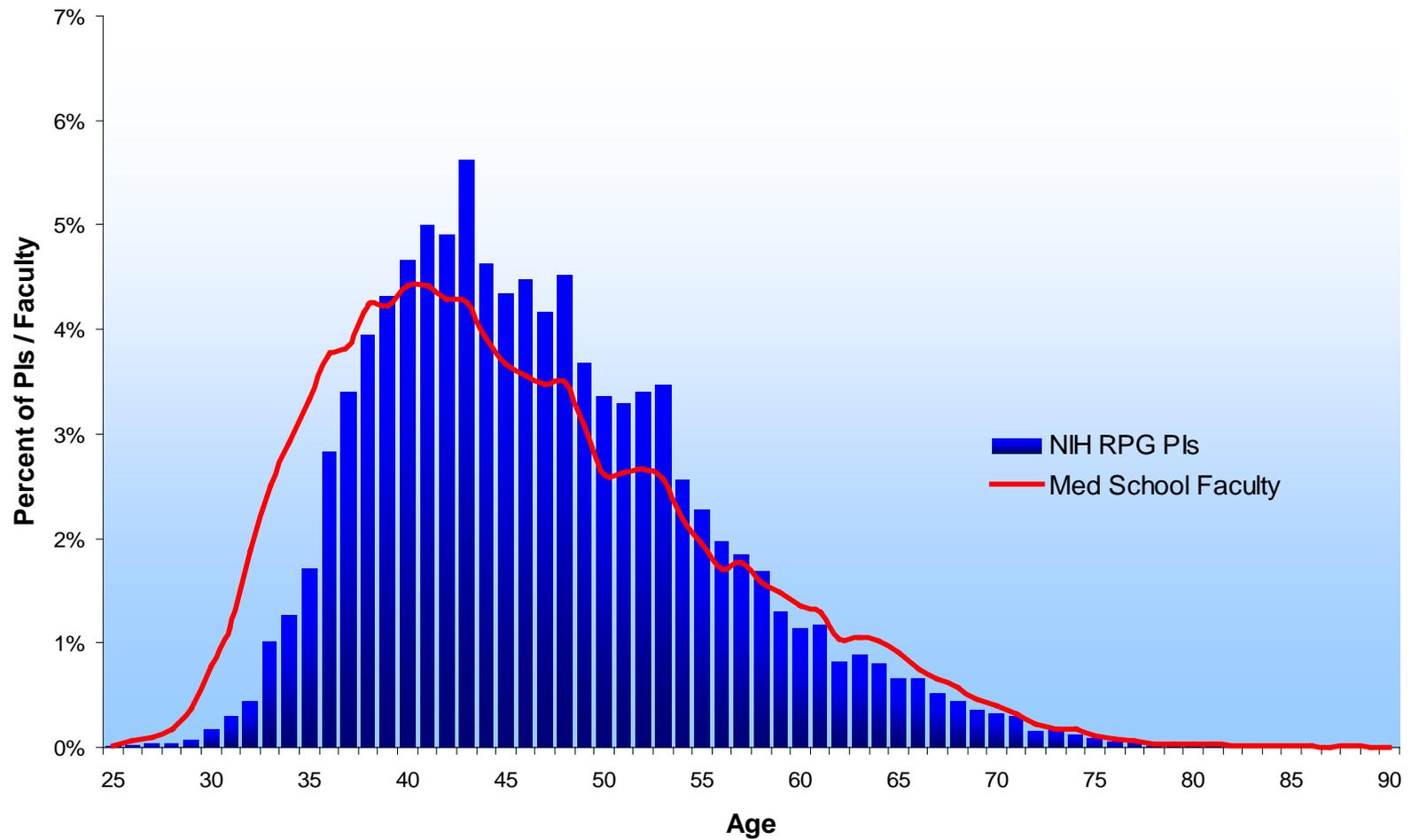




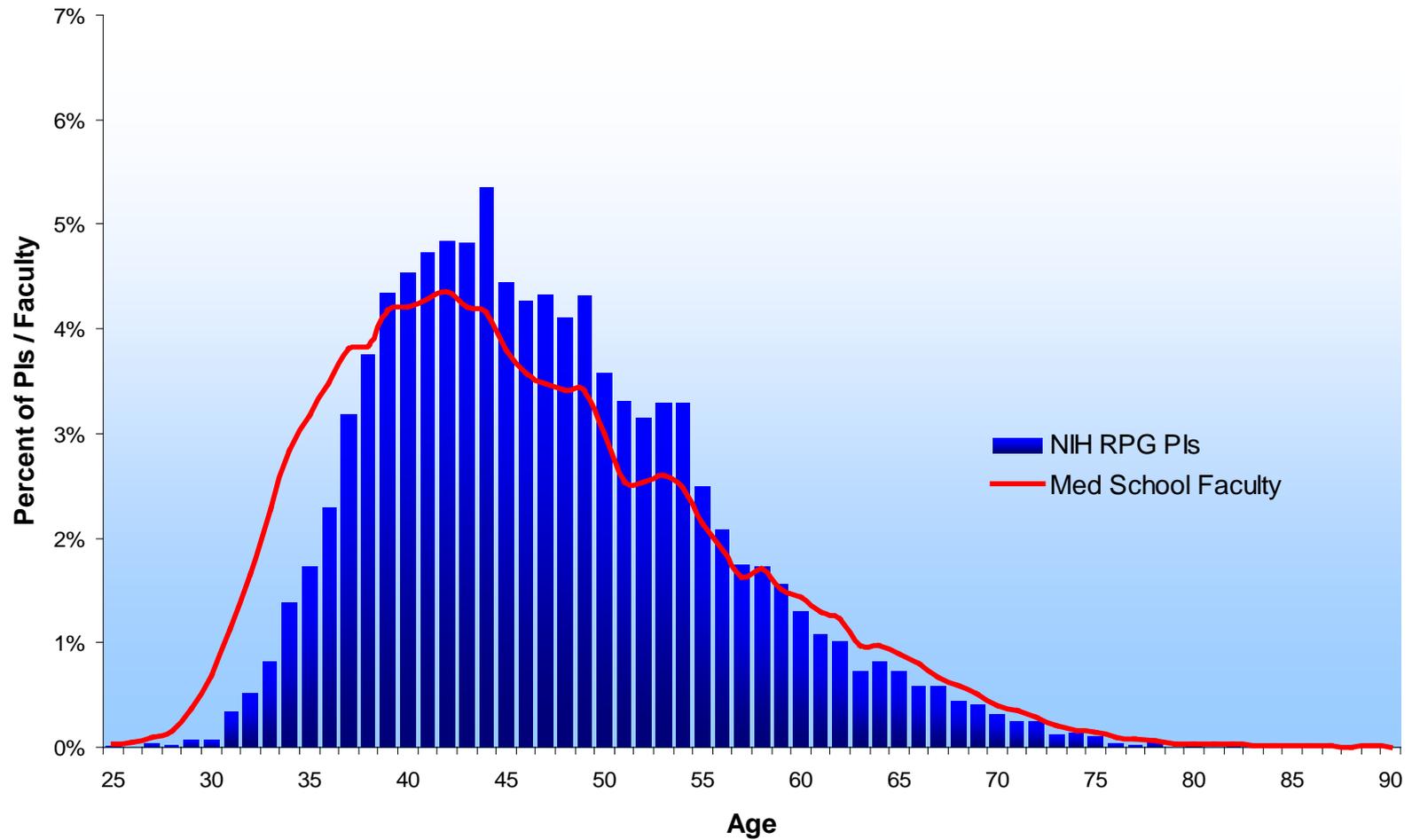
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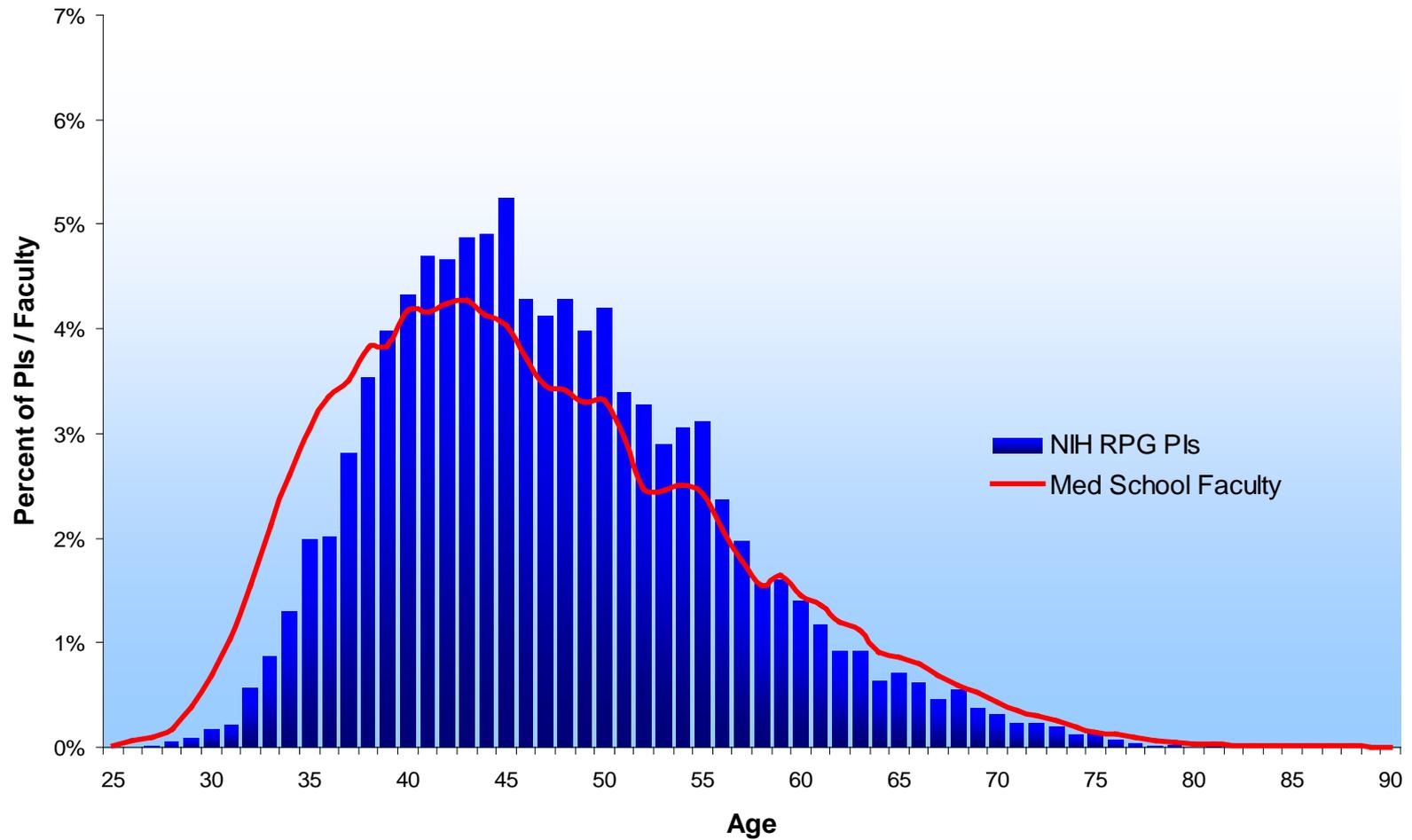


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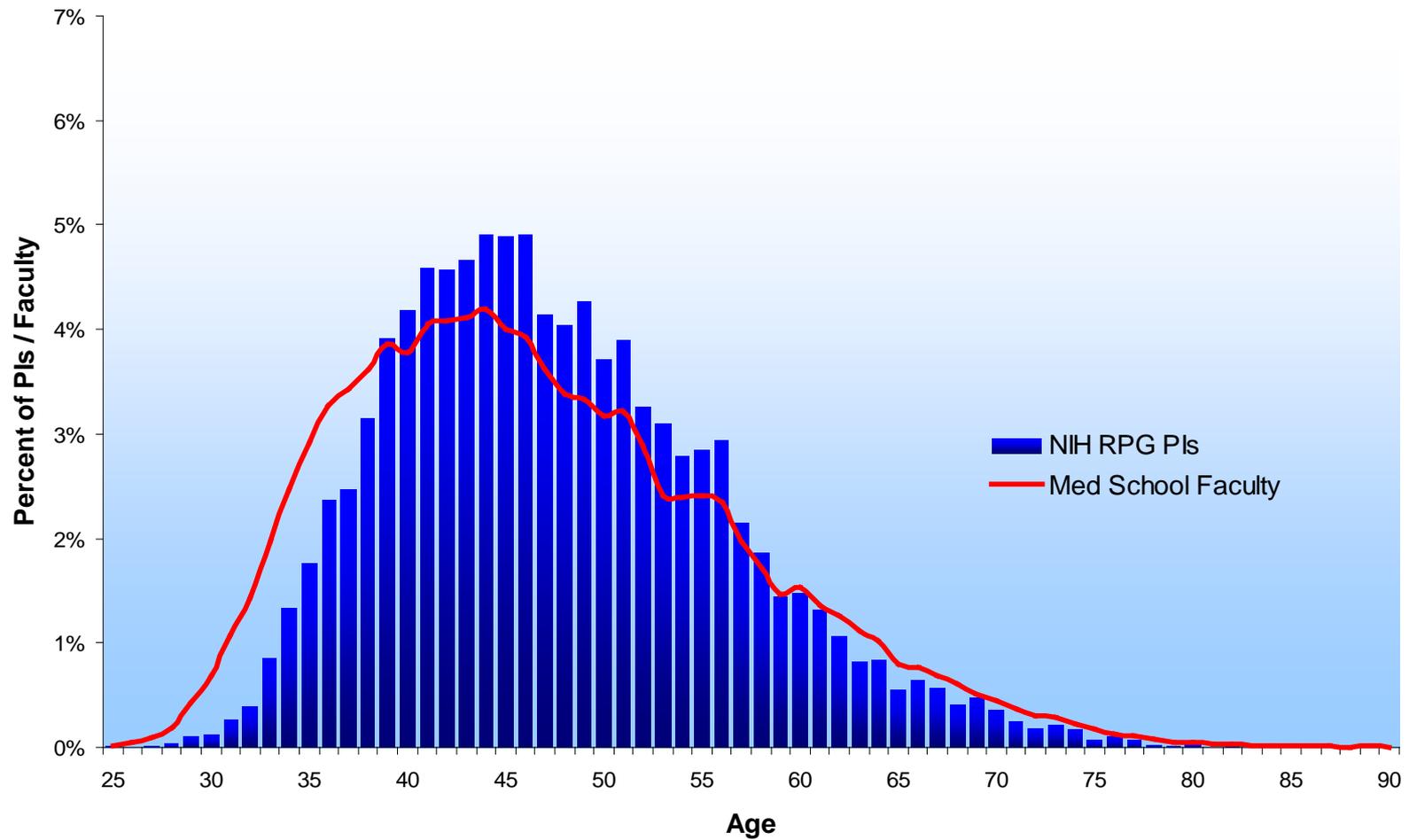


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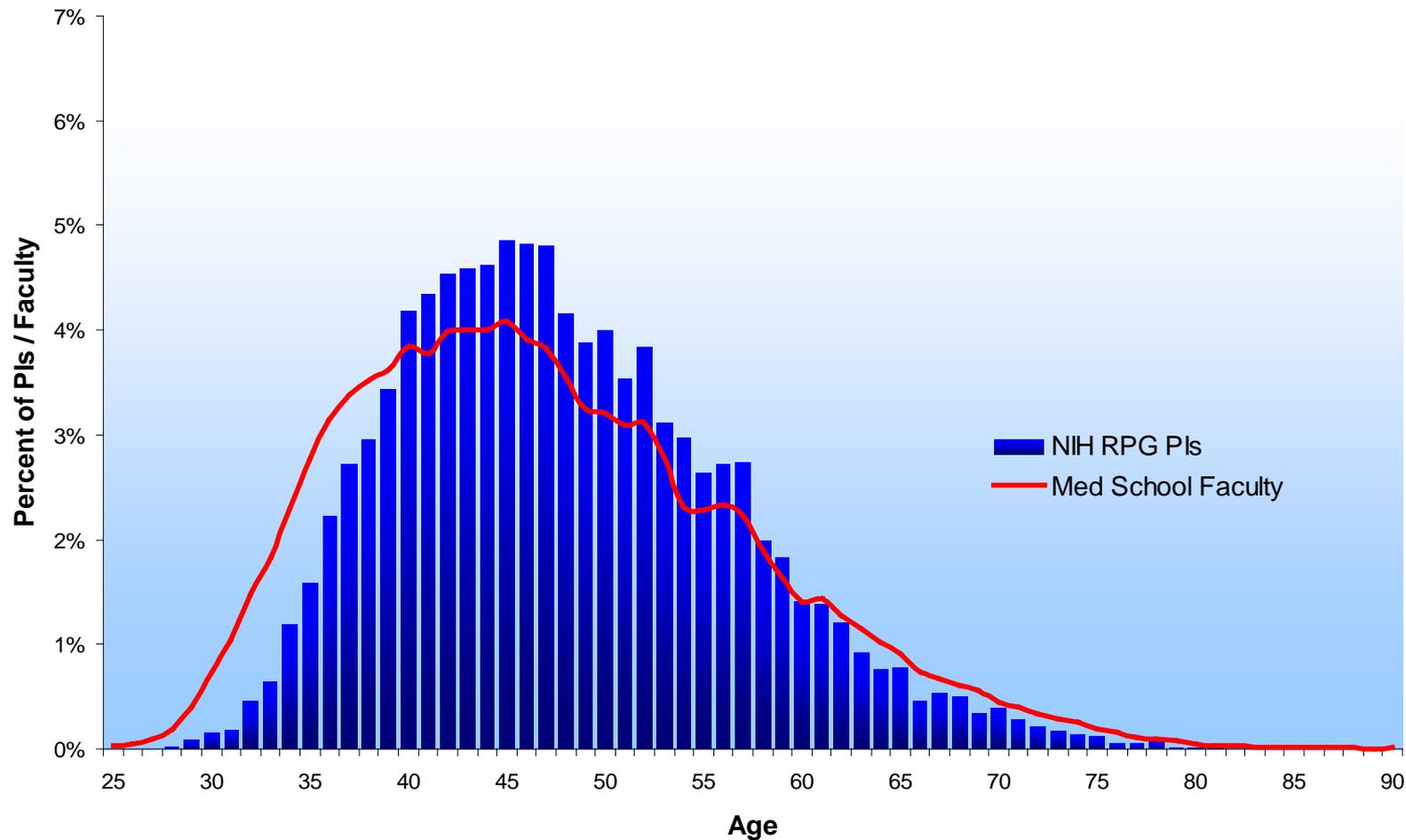




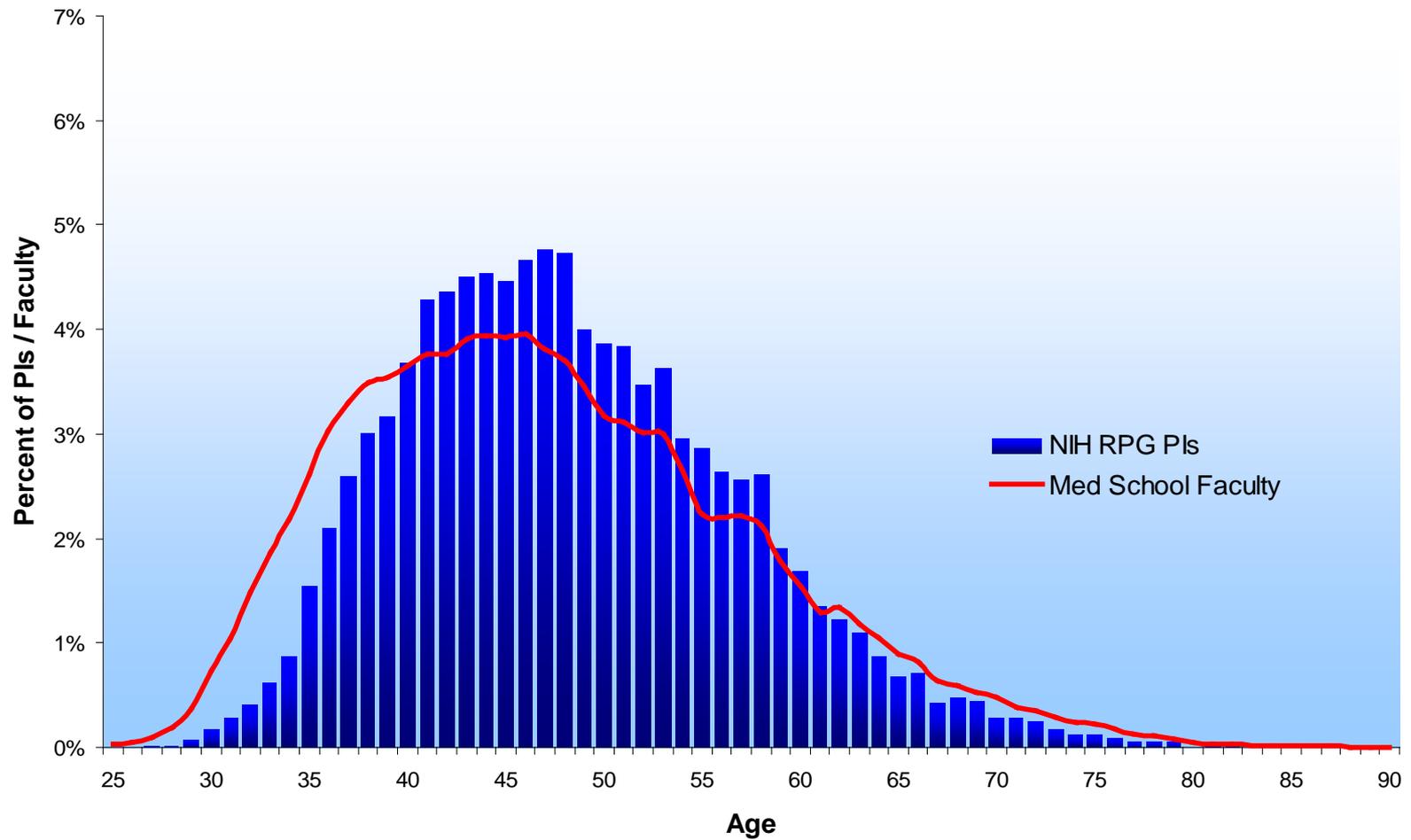
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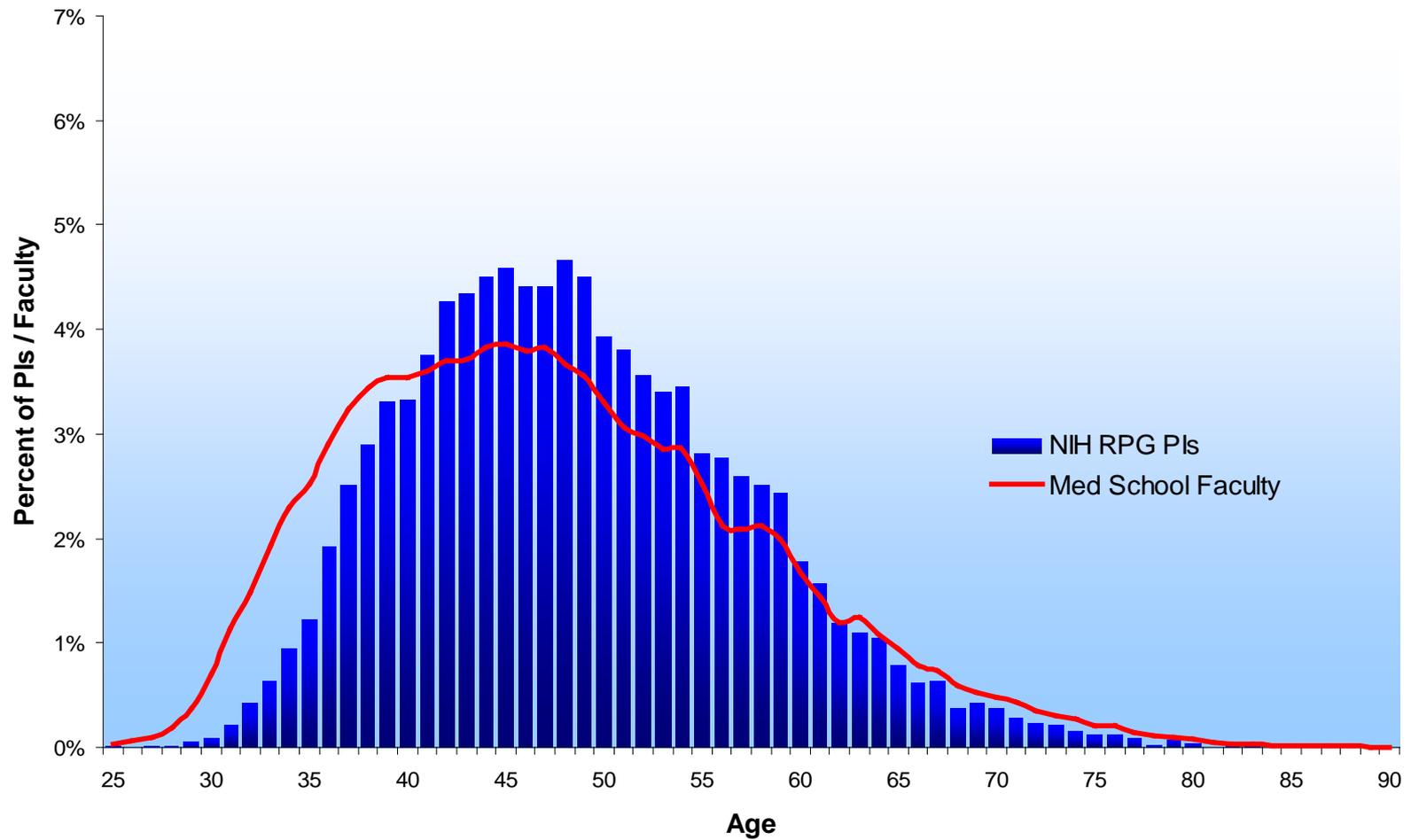
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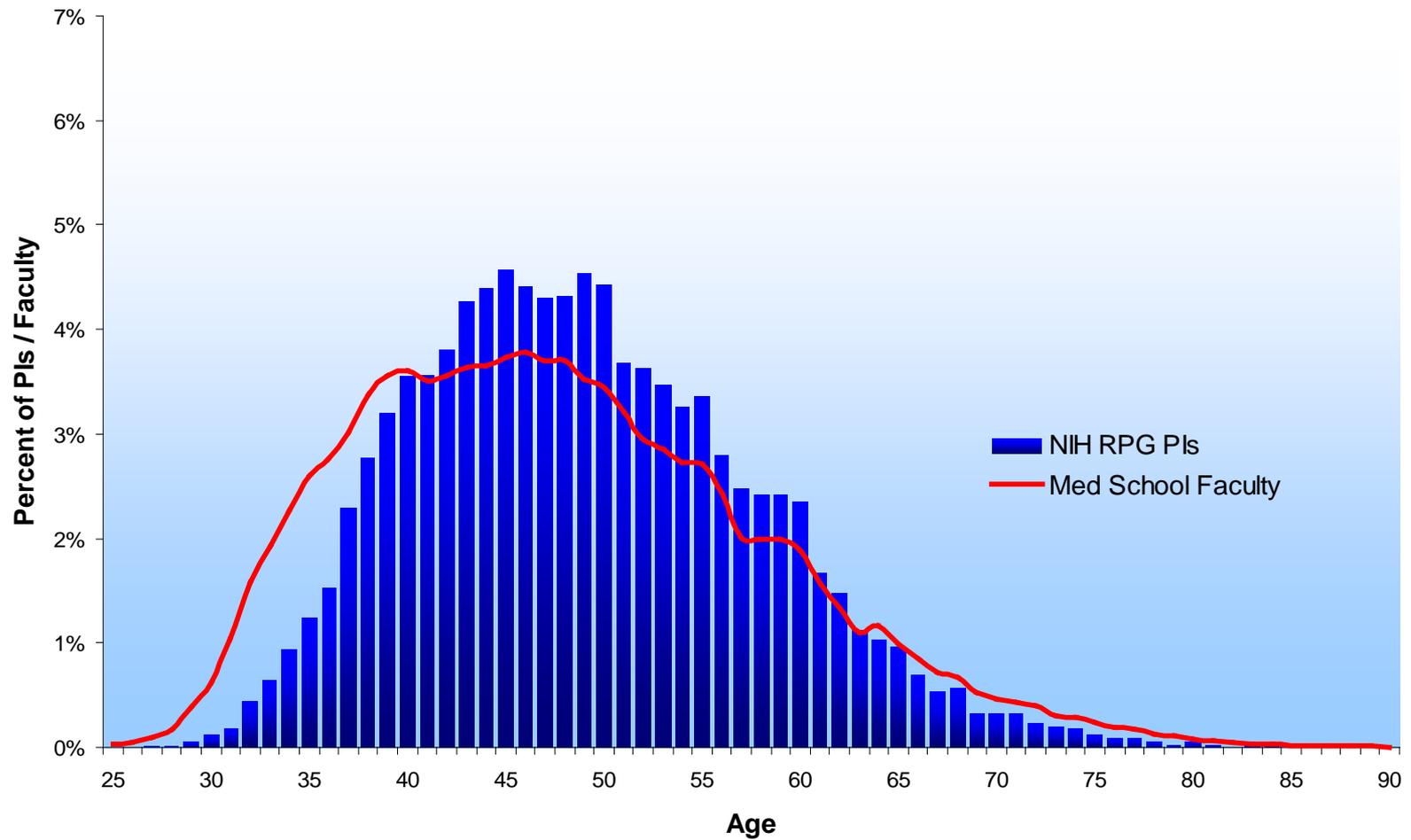
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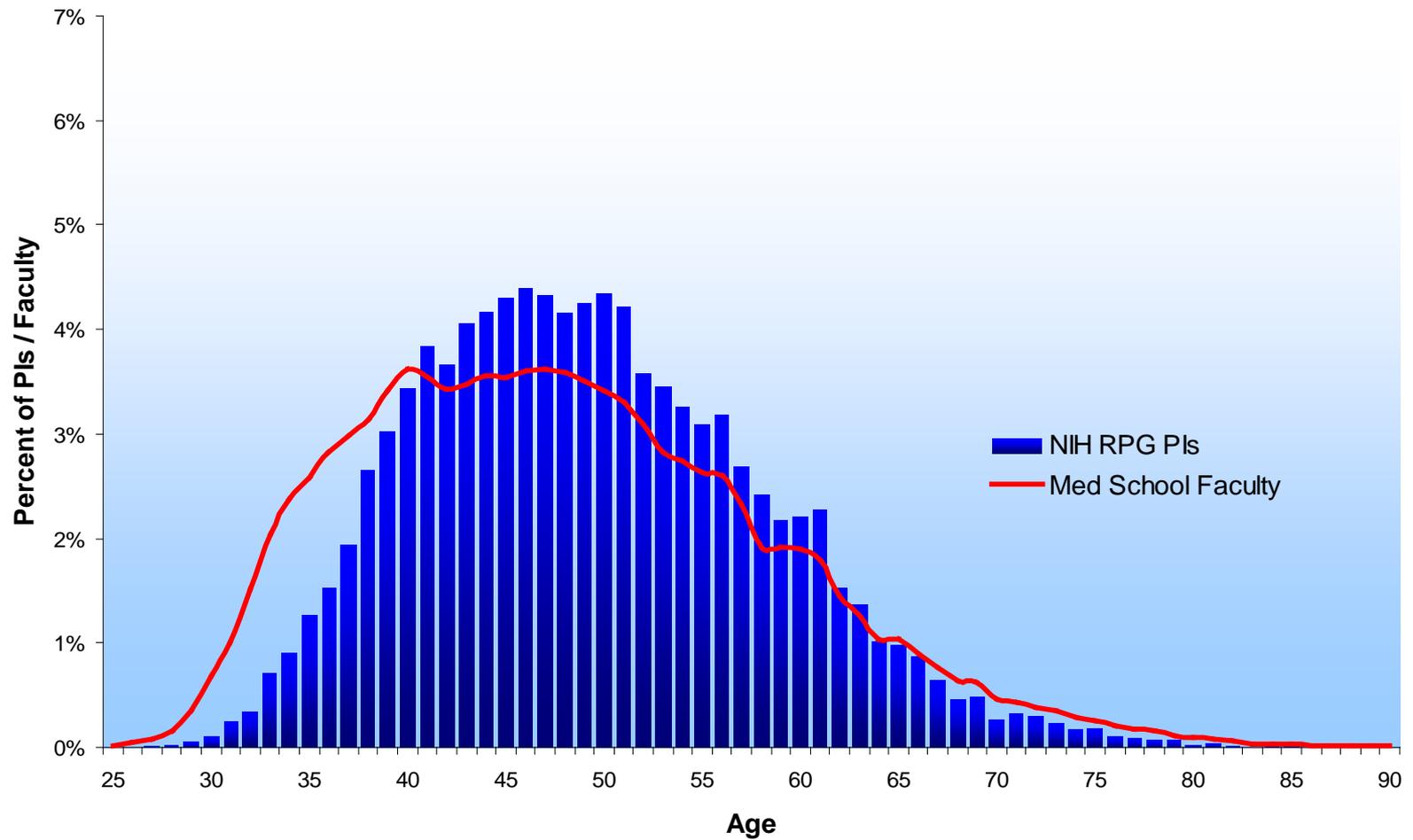
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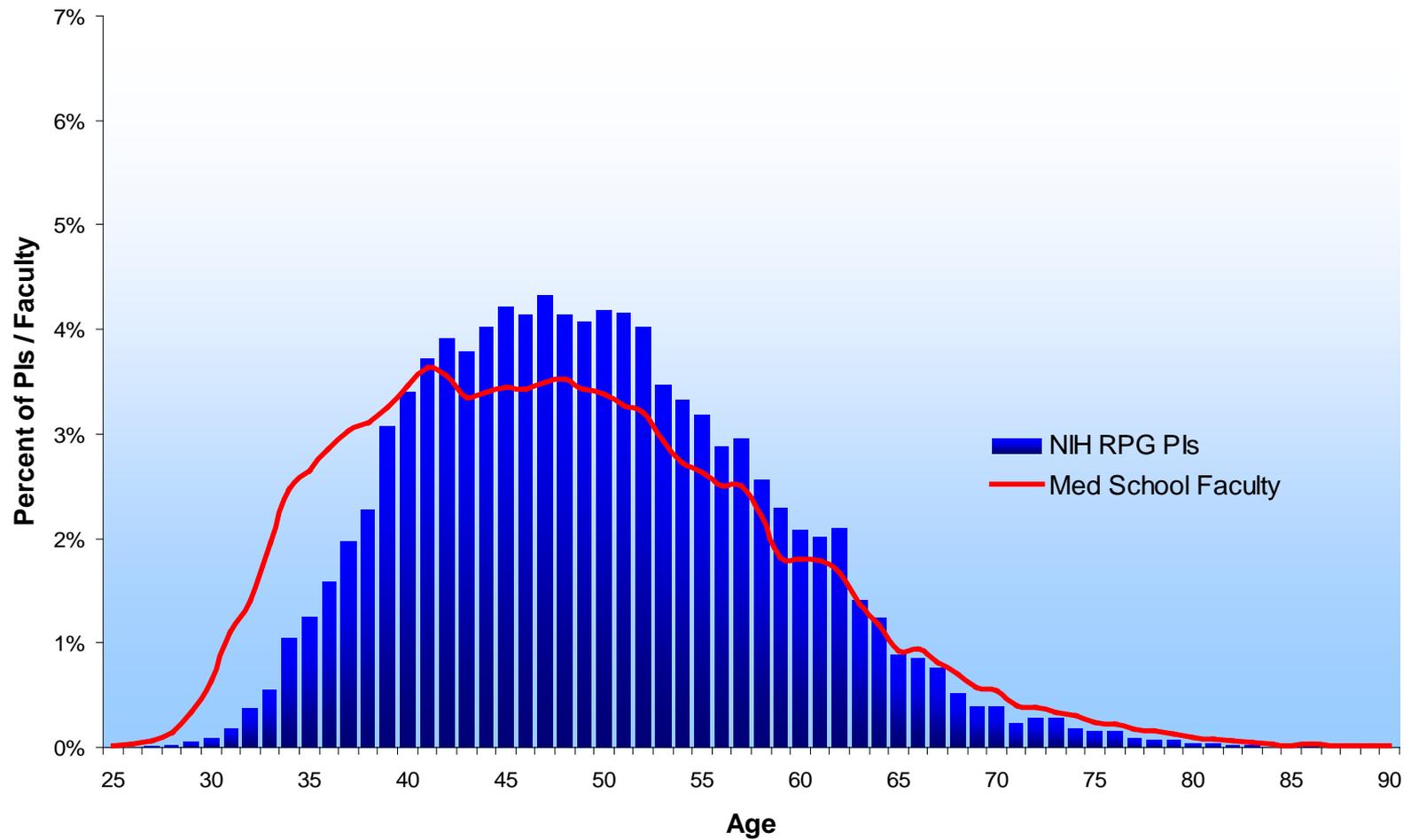
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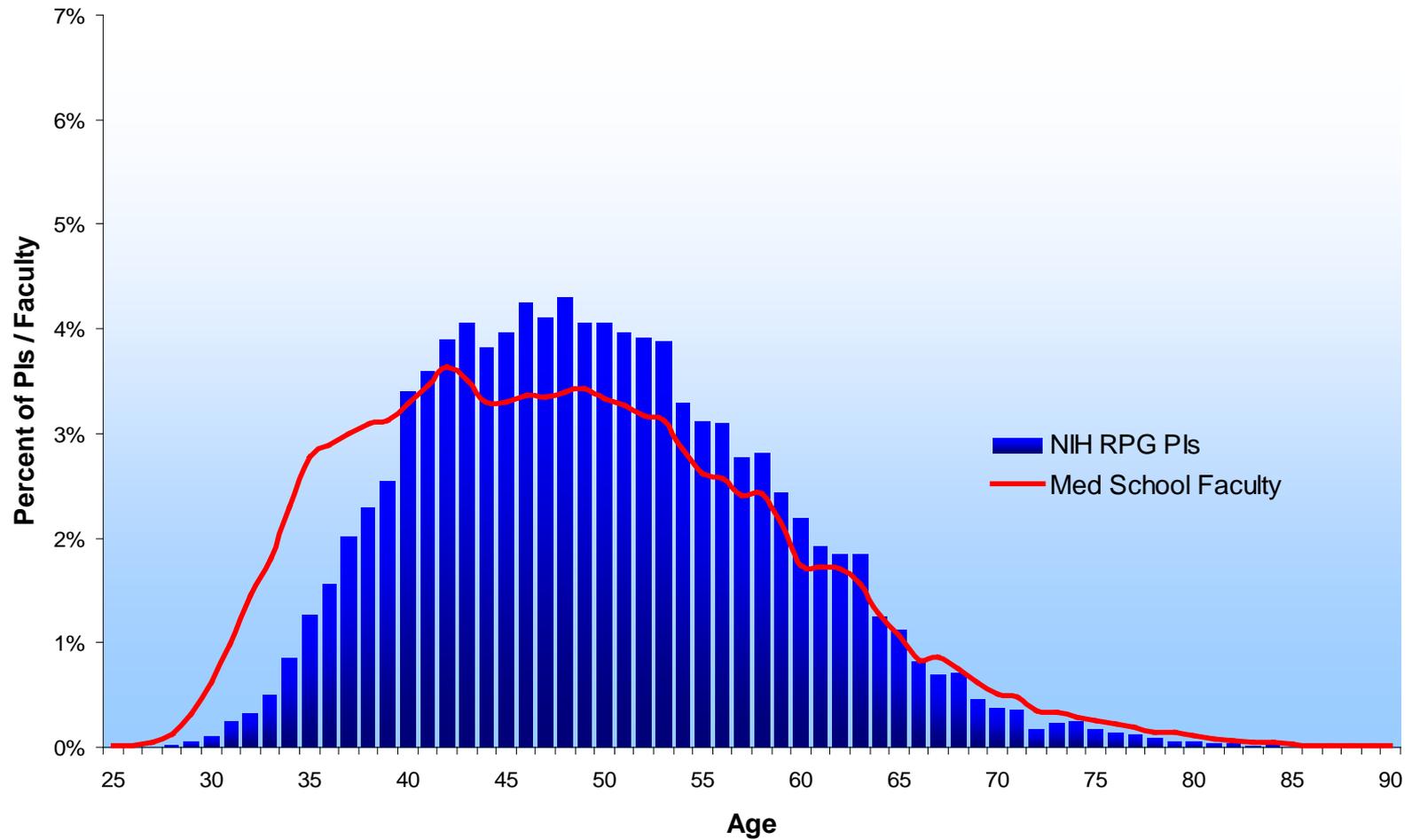
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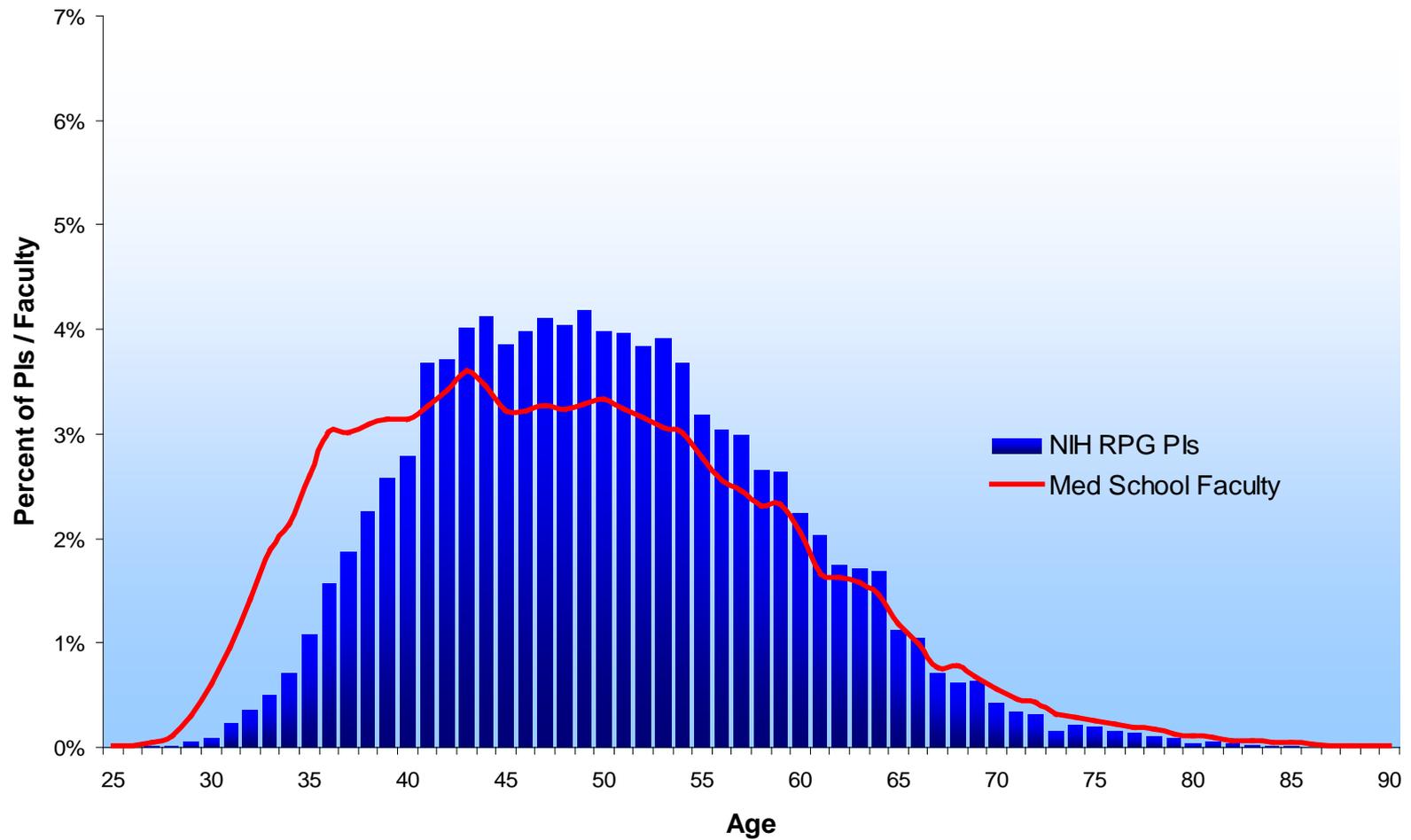
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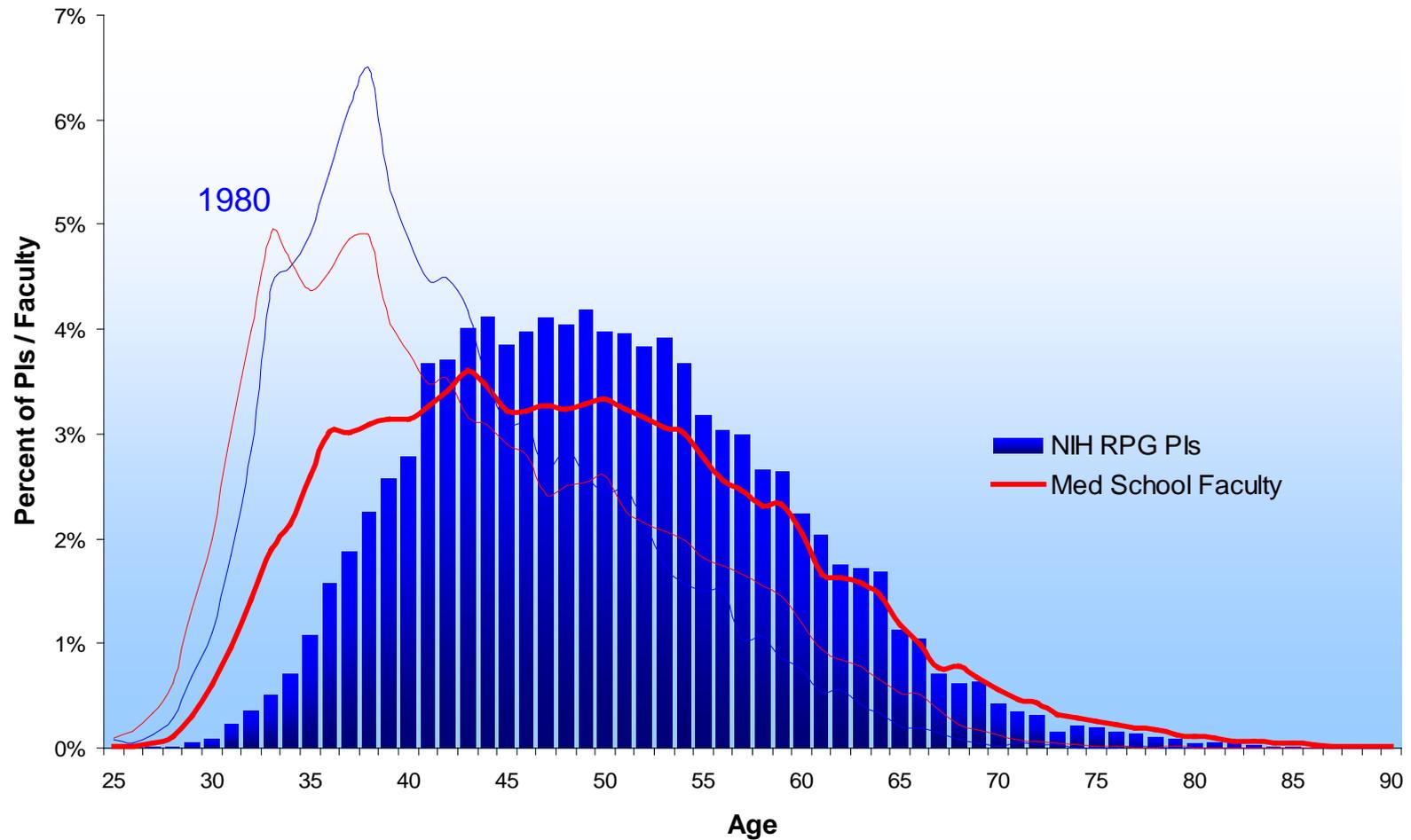
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Changing demographics 2006



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Summary of Changes in NIH PI and Medical School Faculty Pools (1980-2006)...

1980

1998

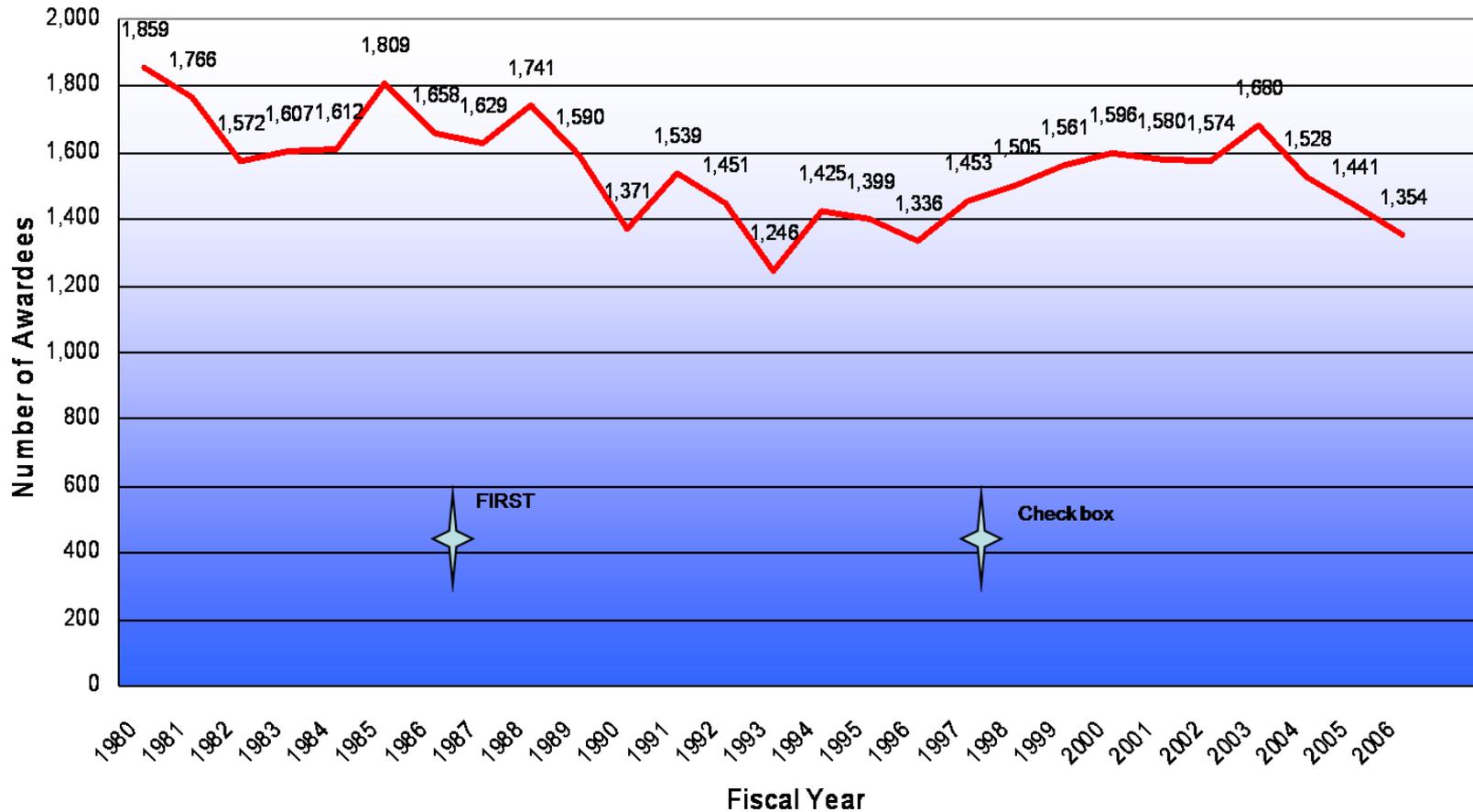
2006

	1980	1998	2006
Number and Average Age of NIH PI	14,887 39.1	17,761 42.7	25,419 50.8
Number and Average Age of NIH New PI	1,843 37.2	1,355 39.0	1,346 42.4
Number of Medical School Faculty Positions	53,552	73,413	121,468
Average Age of Medical School Faculty	43.1	45.2	48.7
Average Age of First time Assistant Prof.	33.9	35.4	37.7



New R01 investigator pool at nine year low in 2006

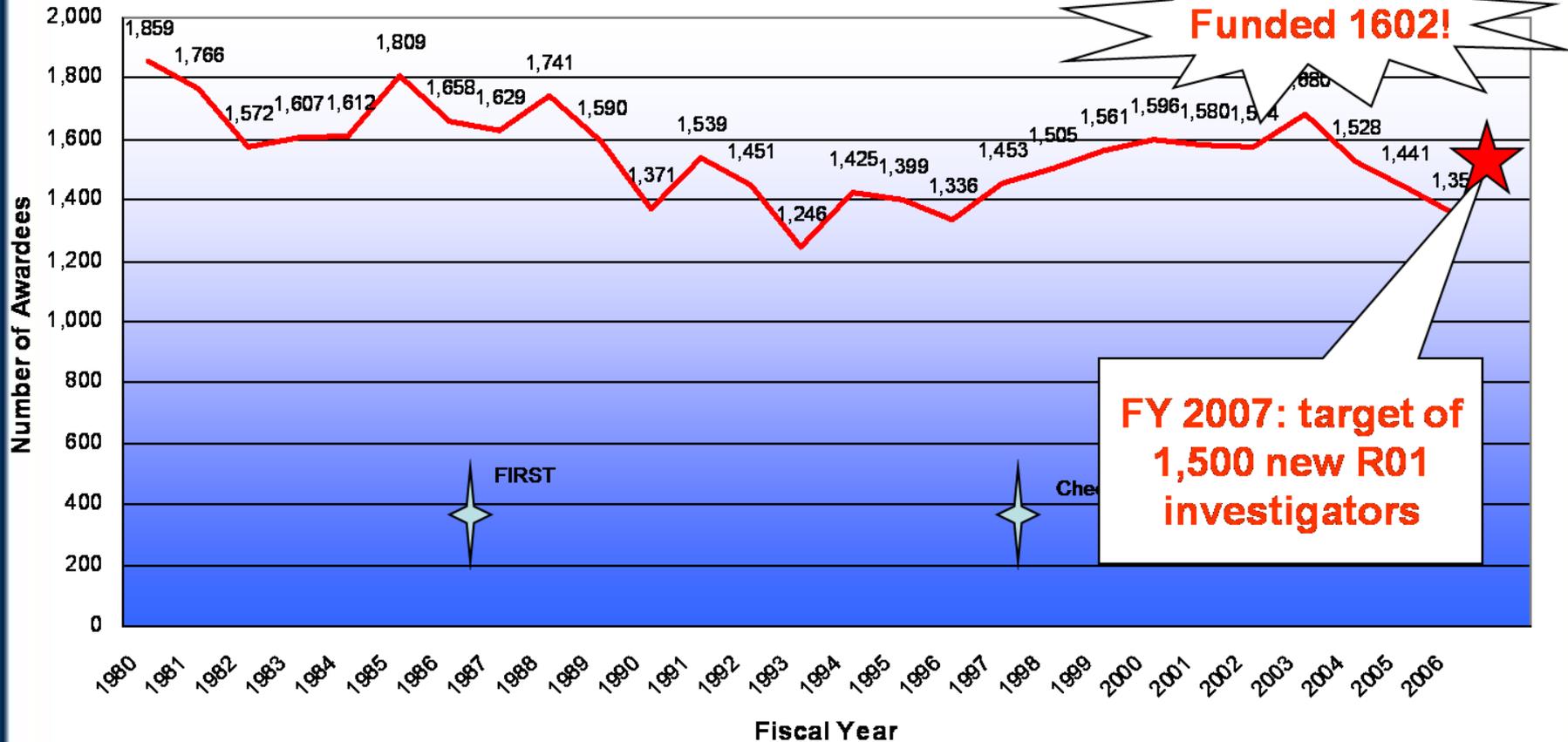
Number of NIH First Time R01 Equivalent Awardees FY 1980-2006





NIH interventions

Number of NIH First Time R01 Equivalent Awardees FY 1980-2006



New Investigators Program



- New investigators are innovators of the future
 - Goal: move new investigators to R01s and independence earlier in their careers
- Resources and opportunities to help new investigators:
 - Accelerated notification of review outcome
 - Pathway to Independence Award
 - NIH Director's New Innovator Award
 - IC practices
 - Career Development Awards (K kiosk)



... to answer the question:

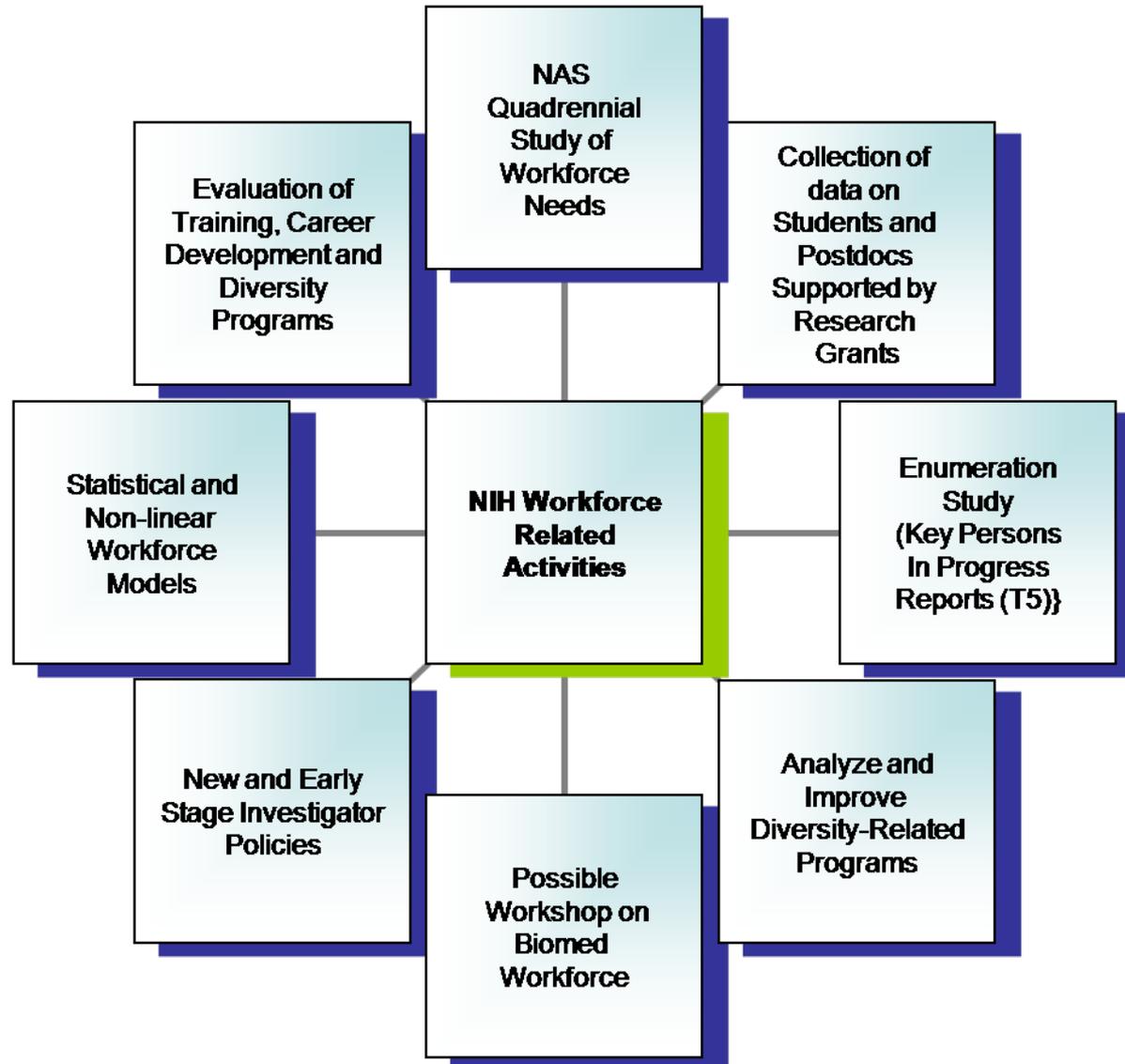
“Will we have enough new investigators to carry out the health-related research of the future?”

What % of overall biomedical research workforce should be comprised of new investigators to ensure a vigorous biomedical research enterprise?

Can we create sensitive & predictive models to inform our policies related to workforce development?



Biomedical research workforce...





Thank you very much for your attention!

